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directed by a man who walks backwards before them. Oats,

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1673. *Kirby, Christopher.*
Strange Effect of Thunder and Lightning on Wheat and
Rye in the Granaries of Dantzic. (*Phil. Trans, Abr.* il. 89.)

1723. *Salmon, William*, M.D. a noted empiric,
who lived about the latter end of the 17th and be-
ginning of the 18th century.





Objets qui concernent la Suisse
12mo.
1764. *Bertrand, Elie*, a clergyman at Orbe, in
Switzerland, and member of various societies.

Economique, etc. ou Dictionnaire universel d'Agriculture
vois. in 4to. 1796.
1773. *Bezon, Gabriel Leopold Charles Ame*, a



2. *Altération du Lait de Vache, désignée sous le Nom de Lait* | in 8vo. 1803.
bleu, in 8vo. 1803.

11. *Traité de l'ancien Pisé des Romains, &c.* *Traité* 98
4 F 3

empêcher sur diverses Tentatives qui ont été faites en Europe, pour imiter les Egyptiens. Paris, in 8vo pp. 36.

1816. *Chatelain, le Chevalier*, a cavalry officer.

Mémoire sur les Chevaux Arabes; Projet tendant à améliorer et à améliorer les Chevaux en France; Notes sur les différentes Races qui doivent être préférées à ce sujet, &c. &c. Paris, 8vo.

1817. *Bornot, M. A.*, a notary at Savoisy.

Pratique raisonnée de la Culture du Trèfle et de Sainfoin. Paris, 8vo. pp. 100.

1818. *Arouais, Foulon*, mayor of Semblançay.

Essai sur les défrichemens des Landes, et le descheement des Marais. Tours, 8vo. pp. 40.

1819. *Lutlin, Ch. J. M.*

Des Pratiques artificielles d'été et d'hiver; de la Nourriture des Brûlés, et de améliorations d'une Ferme dans les Environs de Genève, 2d édit. revuë et considérablement augmentée. Genève, 8vo. pp. 532.

1819. *Peyrouse, Baron Picot de La*.

A Sketch of the Agriculture of a District in the South of France. Translation with Notes. 8vo.

1819. *Villeneuve, Comte Louis de*.

Essai d'un Manuel d'Agriculture ou Exposition du Système de Culture enri pendant 19 ans dans le Domaine d'Hanterive, Commune de Carrières, Département du Tourn. Toulouse, 8vo. pp. 904.

1819. *Ycart, A. Victor*, member of the Institute, and one of the writers in the *Nouveaux Cours d'Agriculture*, &c.

1. Excurson Agronomique en Auvergne, principalement aux Environs des Monts d'Or et de la Dore; suite de Recherches sur l'Etat et l'Importance des Irrigations en France. Paris, 8vo. pp. 218.

2. Considerations générale et particulières sur la Jachère et sur les meilleurs Moyens d'arriver graduellement à sa suppression avec de grands Avantages. Imprimé par ordre de la Société Royale et Centrale d'Agriculture. Paris, 8vo. pp. 220. avec planches. 1822.

1820. *Audouin, Maurice*.

Exposé du Projet d'établissement d'une Ferme expérimentale dans chaque Département du Royaume. Paris, 8vo. pp. 8.

1820. *Crud, Le Baron E. V. B.* the translator of Thae's work from the German.

Economie de l'Agriculture. Genève, 4to. pp. 411.

1820. *Deslandes*.

Elémens de l'Agriculture et des Sciences qui s'y rapportent, &c. Paris, 2 vols. 12mo. pp. 600.

1821. *Guillaume, Ch.*

Instrumens aratoires, inventés, perfectionnés, destinés, et gravés. Par Ch. G. Paris, oblong folio, pp. 28. avec 12 planches.

1821. *Lajons, M. de*, mayor of Atigat.

Abrégé élémentaire d'Agriculture pratique, d'après les principes de Rozier, Arthur Young, Duhamel, &c.; principes appliqués à la Nature du Solles Pyrénées, à sa Température, &c. Toulouse, 8vo. pp. 354. avec fig.

1822. *Adamson, Madame Aglaé*.

La Maison du Campagne. Paris, 3 vols. 18mo. pp. 1098.

1822. *Francès, Aimé*.

L'Art de la Norciculture, ou les Loix d'un Agriculteur Praticien retiré à la Campagne; Méthode pour fabriquer une Quantité Immense de Fumiers qui dureront 8 Ans, tandis que les Fumiers ordinaires sont évaporés dans deux années. Toulouse, 8vo. pp. 48.

1822. *Moré de l'Inde*, peer of France.

1. Quelques Observations pratiques sur la Théorie des Assolemens. Paris, 8vo.

2. Essai sur les Constructions rurales économiques contenant leurs Plans, Coupes, Elevations, Détails, et Dévis établis aux plus bas Prix possibles. (Les détails de Constructions et divisa par A. L. Lusson, Architecte.) Paris, in folio, pp. 40. avec 36 planches.

1822. *Morogues, Baron de*.

Essai sur les Moyens d'améliorer l'Agriculture en France, particulièrement dans les Provinces les Moins riches, et notamment en Soulogne. Paris, 2 vols. 8vo. pp. 932.

1822. *Thiery, P. J.* (officier comptables du dépôt

royal d'étalons de Strasbourg.)

Mémoire sur l'Amélioration des Chevaux en Alsace, par le croisement des Races et l'Education, et particulièrement sur le Moyens de les préserver de la Cécité. Mémoire Couronné, &c. Strasbourg, 4to. pp. 160. 1822.

1822. *Pollignac, Comte Charles de*.

Rapport sur les Troupeaux de pure Race, expliquant les Motifs et le Développement des nouveaux Principes d'Administration pratiqués dans son établissement rural de Calvados. 8vo. Caen, 1822.

1823. *Chaptal, Comte*, a distinguished chemist and statesman, who cultivates a considerable part of his own estate.

La Chimie appliquée à l'Agriculture. Paris, 2 vols. 8vo.

1823. *Rose, Th.* vice president of the Société d'Agriculture du Dents.

1. Rapport sur l'emploi du Plâtre en Agriculture fait au Conseil Royal d'Agriculture. Paris, 8vo. pp. 108.

2. Traité élémentaire de Physique végétale appliquée à l'Agriculture. Paris, 1824. 8vo. pp. 110.

1824. *Dubois, Louis*.

Cours complet et simplifié d'Agriculture et d'Economie rurale et domestique. Paris, 6 vols. 12mo.

1824. *Mathieu de Dombasle, C. J. A.*

Annales Agricoles de Roville, ou Mélanges d'Agriculture, d'Economie rurale et de Législation Agricole. Première livraison. Paris, 8vo.

1824. *Mortemart-Boisse, le Baron de*.

Recherches sur les différentes Races des Bêtes à Laine de la Grande Bretagne, et particulièrement sur la nouvelle Race de Leicestershire. Paris, 8vo.

1824. *Polonceau, M.*

Notice sur les Chèvres Asiatiques à Duvert du Cachemere, et sur un premier Essai tenté pour augmenter leur Duvert, et lui donner des Qualités nouvelles, &c. Paris, 8vo.

1825. *La Société d'Agriculture de Paris*.

Annuaire de la Société Royale et Centrale d'Agriculture. 8vo. (Continued Annually.)

SUBJECT. 2. Bibliography of German Agriculture.

7113. The German agricultural works are as numerous as those of the French, but chiefly translations, and these, for the most part, from the English. We have given a very limited selection, the German language being less generally understood than either the French or Italian. In forest management (*Forstwissenschaft*) the German bibliography is very rich, and it is chiefly these books, and descriptions of local practices, which can be of any interest to the British cultivator. The older German works in rural affairs are enumerated in Haller's *Bibliography*; and the modern ones, and new editions in Ersch's *Handbuch der Deutschen Litteratur*, and the *Leipsic Catalogues*, published annually. Thae's work is decidedly the highest in repute as an author, and Sickler's *Deutsche Landwirthschaft*, a voluminous work, will give a general idea of every part of German husbandry.

1578. *Herrbachius, Conradus*, counsellor to the Duke of Cleve; was born in 1508, died in 1576. He wrote various theological works, besides his *Rei Rustice*, libri iv., which was published in 1570, and his *Legum rusticarum, et operarum per singulos Menses digesta*, in 1595. The former was translated by Barnaby Gooch, of Lincolnshire, with the following title:

Four Books of Husbandrie, containing the whole Art and Trade of Husbandrie, Gardening, Graffing, and Planting, with the Antiquitie and Commendation thereof. Newly Englished and increased by Barnebe Gooch, Esquire. At London, 4to. 1578. Leaves 194, besides the Dedication, Epistle and Table at the beginning; and Olde English Rules in Verse for purchasing Lande, at the end.

His authorities extend from the Bible and doctors of the church, through the Greek and Roman writers, Homer, Cato, &c., to the moderns as low as Ruellius, Fuchsius, Matthiolus, Cardanus, and Tragus. He subjoins a list of his friends and others who assisted him. S. Nich. Malbee, M. Cap. Byng-ham, M. John Sonner, M. Nicas. Yezwert, M. Fitzherbert, M. Willi. Lambert, M. Tuser, M. Tho. Whetenhall, M. Ri. Deering, M. Hen. Brookhull, M. Franklin, H. King, Richard Andrews, Henry

Denys, William Pratte, John Hathe, Philip Partridge, Kenworth Daforth.

The work is in dialogue. The persons are Cono, a gentleman retired into the country; Rego, a courtier; Metella, wife of Cono; and Hermes, a servant.

1591. *Colerus, J.*

1. Calendarium economicum et perpetuum. Wittebergæ.
2. Economie pars prima, qua tractatur quemadmodum bonus oeconomicus famulus suos regere debet et bona sua augere potest per veras honestas artes, et utilia compendia circa res domesticas, Agriculturam, Piscatum, Aucupia, Venationes et Vinearum Culturam. Wittebergæ, 4to. 1593.

1592. *Porta, J. B.*

Ville, lib. xiii. Francofurti, 4to.

1735. *Zeigerns, Antoine*.

Introductio rationalis ad economiam et artem perfricandæ Agriculturæ, in qua methodus exponitur experientia confirmata omnegenus agrorum sine consuetâ stercoreatione fecundandi. 4to.

1754. *Eckhart, J. Gli. von*.

Experimental Oekonomie über das Animalische, Vegetabilische, und Mineral Reiche, oder vollständige Haushaltung und Landwirthschaftskunst. Jena, 1754. 8vo.

1760. *Der Schweizer*.

Gesellschaft in Reiner Nahrung von Landwirthschaftlichen

Dingen; oder Abhandlungen und Beobachtungen durch die ökonomische Gesellschaft in Bern gesammelt. Zurich, 8vo.

1762. *Wiegand, J.*

Wohlfahrter Landwirth; oder Anleitung wie der Landwirthschaft Oekonomie zu verbessern. Wien, 8vo.

1766. *Cramer, John Andreu*, died 1771.

Anleitung zum Fortwesen. Braunsch. fol.

1766. *Dericade*.

Mémoires de l'Agriculture en générale, et de l'Agriculture de Pologne en particulier. Berlin, 8vo.

1769. *Lüders, Ph. E.*

Grundriss einer zu errichtenden Aekerschule, in welcher die Landjugend zu einer richtigen Erkenntnis und Uebung im Landbau eingeführt und zubereitet werden könne. Flensburg, 8vo.

1773. *Krunitz, J. G.*

Oekonomische technologische Encyclopädie, oder allgemeines System der Staats, Stadt, Haus, und Landwirthschaft in Alphabetischer Ordnung. Berlin, 8vo.

1775. *Albrecht, J. F. E.*

Zoonomische und Physikalische Entdeckungen von der innern Einrichtung der Bienen, besonders der art ihrer Bogahtung. Gotha, 8vo.

1775. *Sackow, G. Adg.*

Abhandlung von Nutzen der Chemie zum Behuf des bürgerlichen Lebens und der Oekonomie. Mannheim, 8vo.

1779. *Borcke, H. A. Grafen*, Count de.

Account of the Management of his Estate of Stargordt, in Pomerania. Berlin, 4to, in German.

1780. *Christ, J. L.*

Patriotische Nachrichten, &c.; or, Patriotic Accounts and Instructions concerning the profitable Culture of Tobacco, and more especially of that called Asiatic Tobacco. Francf. 8vo.

1781. *Rössig, Karl Glo*, author of some works on gardening and forest management.

Versuch einer pragmatischen Geschichte der Oekonomie, Polzei und Centralwissenschaften, seit dem 16 ten Jahrhundert, bis auf unsere Zeiten. Deutschland Leipzig, 8vo.

2. Die Geschichte der Oekonomie der vorzüglichsten Länder und Völker der ältern mittlern und neuern Zeit in einem kurzen Entwurfe dargestellt. Leipzig, 8vo. 1798.

1784. *Hillenbrand, Ant.*

Erste Aufangegründe der zur Landwirthschaft nützigen Mechanik. Wien, 8vo.

1784. *Hofmann, Gli. Bd. Freyherr von*.

Die Landwirthschaft für Herrn und Diener. Prag, 8vo.

1785. *Fischer, C. F. J.*

Geschichte des Deutschen Handels, der Schifffahrt, Fischerei, Erfindungen, Künste, Gewerbe, der Landwirthschaft, Polzei des Zoll-Münz- und Bergwesens, der Staatswirthschaft und des Luxus. Hannover, 2 vols. 8vo.

1786. *Hartig, Fr. Grafen von*.

Historische Untersuchung über die Aufnahme und den Verfall der Feldwirthschaft bey verschiedenen Völkern. Prag und Wien, 8vo.

1786. *Rizhaub*.

Brevi re rustice Descriptio. Giessen, 12mo.

1790. *Hartiz, Georges-Louis*.

Observations Historiques sur les Progrès et la Décadence de l'Agriculture chez différents Peuples. Vienne, 5 vols. 8vo.

1791.

Kleine Schriften zur Stadt- und Landwirthschaft von der ökonomischen Gesellschaft in Bern herausgegeben. Zurich, 8vo.

1791. *Nan, Bh. Seb.*

Theoretisch praktisches Handbuch für Oekonomie, Bergbaukunde, Technologie und Thierarzneiwissenschaft (in Alphabetischer Ordnung) von einer Gesellschaft bearbeitet Zurich, 8vo.

1792. *Bosc, K. Ad. H. von*.

Katechetische Unterricht zum Feldbau oder freundschaftliche Gespräche über die vorzüglichsten Gegenstände der alten und neuen Landwirthschaft; nebst einem Anhang, wie die Wohn- und Wirtschaftsgebäude auf kleinen Rittergütern und grossen Bauergütern bequem und wohlfeil anzulegen. Halle, 8vo.

1792. *Riem, J.*

1. Monathlich praktisch ökonomische Encyclopädie für Deutsche, oder zusammenhangender Lehrbegriff der gemeinnützigsten praktischen Wirtschaftskunde, &c. Leipzig, 8vo.

2. Modell Magazin für Oekonomen; oder Abbildungen und Beschreibungen der nützlichsten und bequemsten Geräthschaften, Werkzeuge und Geschirre für Haushaltung, Landwirthschaft, Viehzucht, &c. Leipzig, 1802, 4to. mit Kupfern.

1794. *Stumpf, G.*

Biographie und Schicksale des ökonomisch cameralistischen Instituts zu Jena; mit den nöthigsten Documenten. Jena, 8vo.

1796. *Huber, Francis*, member of the Society of Natural Philosophy and Natural History of Geneva.

Nouvelles Observations sur les Abeilles, adressées à M. Charles Bonnet. Par. 12mo.

1796. *Zehmsen, Ch. H. Adf. von*.

System der Landwirthschaft, nach physischen und chemischen Grundsätzen behandelt, und durch lange Erfahrungen geprüft. Leipzig, 8vo.

1797. *Fischer, H. L.*

Katechismus der Haushaltung und des Ackerbaues zum Gebrauch in Schulen. Braunschweig, 8vo.

1797. *Krantz, Guillaume*.

De l'Agriculture comme Source principale du Bien-être et de la Prospérité d'une Nation. Vienne, 8vo.

1798. *Thacr, Alb.*, of the establishment of Mögeln in Prussia, one of the most enlightened Ger-

man agriculturists, author of numerous works, all in high repute. (572.)

1. Einleitung zur Kenntniss der Englischen Landwirthschaft. Hannover, 8vo.

2. Vermischte Landwirthschaftliche Schriften aus der bey unsern Jahrgängen der Annalen der niedersächsischen Landwirthschaft, ausgewählt und anzuergweise in Ansehung der eignen Arbeiten verbessert. Hannover, 8vo. 1806.

3. Grundsätze der rationellen Landwirthschaft. Berlin, 4to. 1809.

4. Annalen der niedersächsischen Landwirthschaft herausgegeben von der Braunschweigischen Landwirthschaftlichen Gesellschaft durch Alb. Thacr und J. Kr. Bencke. Zeitz, 8vo. 1799.

1799. *Anton, K. Glo*.

Versuch einer Geschichte der deutschen Landwirthschaft von den ältesten Zeiten bis zu Ende des 15 ten Jahrhunderts. Götting, 8vo.

1801. *Rückert, G. Ch. Alb.*

Bemerkung über Thacrs Einleitung zur Kenntniss der Englischen Landwirthschaft. Wien, 8vo.

1800. *Schindler, A. H. von*.

Bemerkungen über Thacrs Schreiben, &c. Leipzig, 8vo.

1801. *Huber, P.*, of Lausanne, in Switzerland,

and son of Francis, previously mentioned.

1. Memoirs concerning the Influence of the Air, and several gaseous Substances, on the Germination of various kinds of Grain. Geneva, 8vo.

2. Recherches sur les Mœurs des Fourmis Indigènes. Paris, 1810.

1802. *Costa, Ch.*

Essai sur l'Amélioration de l'Agriculture dans les Pays Montueux, et en particulier dans la Savoie. 8vo.

1802. *Eichenbach, Ch. Ghd.*

Kunstmagazin der Mechanik und technischen Chemie: oder Sammlung von Abbildungen und Beschreibungen verschiedener Maschinen, zur Veredlung des Ackerbaues, der Manufacturen und Fabriken. Leipzig, 4to.

1802. *Gothard, J. Ch.*

Das Ganze der Landwirthschaft; ein Systematisches Lehrbuch für Oekonomen, so wie für jeden, der sich dieser Wissenschaft widmet. Mainz, 8vo.

1803. *Engel, Lud. Hm. H. von*.

Anwendung der Englischen Landwirthschaft auf die Deutsche und beide gegen einander gestellt nach Thacrs Einleitung. Leipzig, 8vo.

1803. *Hermstadt, Sem. F.*

Archiv der Agricultur-Chemie, für denkende Landwirthe; oder Sammlungen der wichtigsten Entdeckungen, Erfahrungen und Beobachtungen in der Physik und Chemie, &c. Berlin.

1803. *Weber, F. Bd.*

Handbuch der ökonomischen Literatur: oder Systematische Anleitung zur Kenntniss der Deutschen ökonomischen Schriften; die sowohl die gesammte Land- und Hauswirthschaft, als die mit denselben verbundenen Hulf- und Nebengewerkschaften angehen; mit Angabe ihres Ladenpreises und Bemerkung ihres Werthes. Berlin, 8vo.

1804. *Richter, K. F.*

1. Chemisch Oekonomisches Taschenbuch für Wirthschaftsbeamtete, oder Darstellung der chemischen Elementargegenstände, welche mit der Oekonomie in der engsten Verbindung stehen. Chemnitz und Leipzig, 8vo.

2. Historische, Tabellarische Darstellungen der in jedem Monate vorkommenden Landwirthschaftlichen Arbeiten: auf jedes Jahr anwendbar, für Rittergutsbesitzer, Pächter und Verwalter. Chemnitz, Leipzig, fol. 1804.

1805. *Sickler, F. Ch. L.*, son to the celebrated German pomologist, and author of some interesting gardening works. (See *Encyc. of Gard.* p. 1158.)

Le Spindrophore, ou Char à Planter le Bled, avec deux planches. Paris, 8vo.

1808. *Fellenberg, Emmanuel*, of the celebrated agricultural establishment in Switzerland already noticed (343.)

1. Rapport à S. Ex. le Landamman et à la Diète des 19 Cantons de la Suisse, sur les Etablissements agricoles de M. Fellenberg à Hofwyl, par M. M. Heer, &c. Paris et Genes, 8vo.

2. Vues relatives à l'Agriculture de la Suisse, et aux Moyens de la perfectionner. Geneva, 1808.

3. Anstalten der schweizer Landwirthschaft und der zweckmässigsten Mittels sie zu vervollkommen. Carlsruhe, 8vo. 1809.

1808. *Escher, von Berg.*

Briefe über die Fellenbergische Wirthschaft zu Hofwyl. Zurich, 8vo.

1808. *Theress, Thdr.*

Theoretisch-Praktisches Handwörterbuch der gesammten Landwirthschaft; oder Anweisung zur Kenntniss, Behandlung und Benützung aller Landwirthschaftlichen Gegenstände: als des Feld- und Gartenbaues, der Viehzucht, &c. Göttingen, 8vo.

1809. *Hoffmann, A.*

Ueber Fellenberg's Wirthschaft in Hofwyl; nebst Anmerkungen und eine Nachschrift von Alb. Thacr (aus den Annalen des Ackerbaues). Berlin, 8vo.

1809. *Schiffeld, L.*

Berichtigung des helvetischen National Reports über die Landwirthschaftlichen Anstalten des Herrns Em. Fellenberg zu Hofwyl. Erlangen, 8vo.

1809. *Trantman, Ch.*

Lehrplan der Landwirthschaft. Wien, 8vo.

1810. *Schönlentner, M.*

Nachrichten über die königliche Landwirthschaftliche Weihenstephan und über das dort eingeführte Thacrs Ackerwesen. München, 8vo.

1. Elementi di economia campestre ad uso de' Licei. Milano, in 8vo. carta fina.
2. Annali dell' Agricoltura del regno d' Italia cominciati in (Gennaio) 1809, e terminate in Giugno, 1814, fascicoli 66, formanti 22 vol. in 8vo. con circa 30 rami e tavole.
3. Del Cotone, e delle avvertenze per ben coltivarlo. Milano, 1811, in 8vo.
4. Nuovi Elementi di Agricoltura, volumi 4 in 8. Dedicati a S. A. R. Francesco IV. d' Este, Duca di Modena, &c. &c.
5. Del Letami e delle altre sostanze adoperate in Italia per migliorare i terreni e del come profittarne; Saggio. Milano, 1815, in 8vo.
6. Saggio sopra la Steria e il Coltivamento dell' Erba Medica. Milano, 1817, in 8vo.
7. Saggio storico sullo stato e sulle vicende dell' Agricoltura Antica del paese posto fra l'Adriatico, l'Alpe, e l'Appennino, sino al Fronte. Mil. 1817. 8vo.
1807. *Tapputi, D.*
Reflexions sur l'Etat de l'Agriculture et de quelques autres parties de l'Administration dans le Royaume de Naples, sous Ferdinand IV., précédées d'une Introduction ou Coup-d'oeil sur l'ancien Etat de ce Pays, et suivies d'un Mémoire intitulé, Recherches sur la Plante vulgairement nommée Storta dans le Royaume de Naples, in 8vo.
1809. *Arduino, Luigi.*
1. Memoria intorno la coltura ed usi economici del Cincoro Corakan. Mil. 8vo. fig.
2. Nuovo metodo per estrarre lo zucchero dalle canne dell' Olio di Caffera. Padova, 1811, 8vo. fig.
1809. *Tozzetti, Oct. Targ., M.D., professor of agriculture at Florence, and director of different national establishments there.*
1. Dizionario dei Nomi di Botanica e di Agricoltura, Latino-Italiano e Italiano-Latino. Firenze, 2 vol. 8vo.
2. Lezioni d'Agricoltura. Firenze, 6 vols. 8vo.
1810. *Benetti, Santo.*
1. Accorto Fattor di Villa, o sia Osservazioni utili ad un fattore per il governo della Campagna e per la soprintendenza al Cotone. Venezia. 8vo.
1810. *Spadoni, Paolo.*
1. Modo di coltivare il Napo Silvestre detto volgarmente Ravizzone, e del metodo di cavarne l' olio alla maniera dei Biologues. Venezia. 8vo.
2. Dello stabilimento, piantagione e conservazione delle siepi, con il disegno per ben formarle. Venezia, 1810. 8vo.
1811. *Albertazzi, Jacopo Antonio.*
1. Padre di famiglia in casa ed in campagna. Milano, vol. vi. 12mo.
1811. *Giacinto, P. Carlo, professor of botany in Malta.*
Agricultural Essay, adapted to the Island of Malta. Messina.
1811. *Lampadius, Augusto Guglielmo.*
Esperimenti sopra lo zucchero di Barbabietole. Novara. 8vo.
1811. *Losano, Matteo.*
Delle Malattie del grano in erba non curate o ben conosciute. Carmagnola. 8vo.
1811. *Bassi, Agostino.*
1. Il Pastore bene istruito. Milano. 8vo. ~
2. Dell' utilità ed uso del Fieno di Terra, e del modo migliore di coltivarlo. Lodi, 1817. 8vo.
1812. *Dandolo, Vincenzo.*
1. Nuovi cenni sulla coltivazione de' Fieni di Terra, e vantaggi della medesima, rapporto al ben essere dell' uomo: dello stato, Lettera al Cav. Filippo Re. Como. 8vo.
2. Enologia, ovvero l'Arte di fare, conservare, e far viaggiare i vini del Regno d' Italia. Milano, 1812, vol. 2. 8vo. fig.
1812. *Lullin, J. M.*
1. Almanach du cultivateur du Leman. Gênes, 8vo.
2. Delle vaterie artificiali d'estate e d'inverno, del trattamento delle pecore e miglioramento di una tenuta. Firenze, 1817, vol. ii. 8vo.
3. Des prairies artificielles d'été et d'hiver, de la nourriture des bœufs et de l'usage des débris d'une ferme dans les environs de Genève. Paris, 1819. 8vo.
- Gagliardo, G. B.*
Catechismo agrario per uso dei curati di campagna e de' fattori delle ville. Napoli, terza edizione, con aggiunte. 8vo.
1815. *Galliziotti, Filippo.*
Sulla dimora alla campagna dei ricchi possidenti e dell'utilità dell'istruzione degli ecclesiastici nell'agricoltura. Firenze. 8vo.
1815. *Malenotti, Ignazio.*
Il padrone contadino, osservazioni agrario-critiche. Colle. 8vo. fig.
1816. *Finorchi, Anton. Maria.*
Regole teoriche-pratiche e rustico-legali per fare le stime dei predi rustici. Firenze. 8vo.
1816. *Ricci, Jacopo.*
1. Catechismo Agrario. Firenze. 8vo.
2. Del vino, delle sue malattie, e dei suoi rimedi, e dei mezzi per scoprirne le falsificazioni; dei vini aranciati, e della fabbricazione dell'aceto. 8vo.
1816. *Onorati, Nicola Columella.*
1. Delle patate, loro coltura, uso economico, e maniera di farne il pane. Milano. 18mo.
2. Raggi di economia campestre e domestica per dodici mesi dell'anno, ad uso degli agricoltori, dei pastori, e di altra gente industriosa. 18mo.
3. De' Vinaccioli e del modo di estrarne l'olio, e di altri vantaggi che si possono ottenere da' medesimi. Napoli, 1813. 8vo.
1817. *Landeschi, ———, parish priest of Saint Miniato.*
Saggio di Agricoltura, con note di Antonio Becchi. Firenze. 8vo. fig.
1818. *Ferrario, G. A.*
L'Agente in Campagna o sia regola sperimentata per migliorare i prodotti d'ogni genere d'Agricoltura secondo le terre del regno d'Italia; opera accomodata all'intelligenza de' contadini per loro maggior profitto. Milano. 8vo.
1818. *Gialdi, Giuseppe.*
Lezione presulale di Agricoltura pratica ragionata. Parma. 8vo.
1818. *Redolfi, Cosimo.*
Memoria sopra un nuovo metodo per ottenere la farina di patate; sull'orzo, sull'acido muratico, sulle zuppe senniche, e sulla ruggine del grano. Firenze. 8vo.

SUBSECT. 4. *Of the Bibliography of the Agriculture of the other Countries of Europe.*

7115. *Germany and Britain* are the only countries in Europe in which it answers to print agricultural books for the sake of the indigenous readers. In Britain education is so general among the middling and lower orders, that reading among them is a necessary convenience of life: in Germany, education and reading are equally general and essential; and consequently in either of these two countries, a book will pay by its sale within the country. But this is not the case in any other European country. In France the mass of the people do not read, but books printed there pay because they are in a language more universal than any other, and perfectly understood by all men of education in Europe. Italian books pay, because they are enquired for by the agriculturists of the south of France, all Spain, and in part of Spanish America.

7116. *Spanish and Portuguese books on agriculture* are in much too limited a demand for production. The earliest Spanish author is Herrera in 1596; and there are scarcely half a dozen since. After the most particular researches of a book agent at Madrid, he was only able to send a list of translations, and the transactions of the Economical Society of Madrid, who have also published Herrera's work with notes within the present century. In 1815, a professor at Madrid published *Leiones de Agricultura explicadas en el Jardén Botanico*, 2 tomes, 4to. An anonymous author, *Disertaciones sobre varios Plantos Agronomicos*, 1 tom. 4to. Of Portuguese books we could hear of none.

7117. *Of Flemish and Dutch books on agriculture* there are scarcely any. These languages are very limited, and every reader in Holland or Flanders understands French or German. Many works have been published in the low countries in Latin and French, but these cannot be considered indigenous. The few Dutch works on culture belong almost all to gardening, (*Encyc. of Gard.* 7695.) The result of our correspondence with Amsterdam is a *Nieuwe Naamlijst van Boeken, &c.*, from which we see little worth taking. There are several translations from British works on culture, and French veterinary books, and the following seem the latest on husbandry.

Magazijn van Vaderlandschen Landbouw, door J. Kops, Commissaris tot den Landbouw, 6 deelen compleet met register.

Aanwijzing ter verbetering van de Akkerbouw en Landhuishoukunde, in de Nederlanden, door Professor A. Bruchhausen, in 2 deelen.

De Boeren Goudmijn, of kunst, om van verschillende soorten van Landrijen, het meeste nut te trekken, meer Vee te kunnen houden, en andere Wetenswaardigheden tot den Landbouw, door J. F. Serurier en J. Kops, met platen.

7118. *Of Swedish and Danish books on agriculture*, there are necessarily very few; these languages being of very limited use, and the mass of the people too poor to be able to afford to read about ordinary matters, or what they consider as already well known to them. The time such a people give to reading will be devoted to religious subjects, heroic and romantic poetry, or history. The universities of

Stockholm and Upsal every one knows has produced some useful naturalists; some of these have written tracts on agricultural improvements, especially on planting fruit trees (*Frucht-Träd*) and cultivating culinary vegetables (*Köcks-och Krydd*). A few of such works we have enumerated in our Bibliography of Gardening (7696), but we can scarcely find any fit to be inserted here as agricultural. *The Natural and Chemical Elements of Agriculture*, by Count Gustavus Adolphus Gyllenberg, a learned Swedish statesman, were translated by John Mills in 1770, and may be considered as the prototype of Davy's *Agricultural Chemistry*.

7119. *Of Polish and Russian books on agriculture* it may be easily conceived there are very few. Some translations from French works were made into the Polish language under Fred. Augustus II.; but few or none since that time; the German or French being universally understood by the reading class. Books of agriculture in the Russian language could be of little use. The only things printed in that way there are in the transactions of the Economical Society of Petersburg, by foreigners resident there, and in Latin or German. The best informed Russian nobles read French or German like the Poles. There is an agricultural society at Warsaw, who occasionally print their transactions.

SUBJECT. 5. *Agricultural Bibliography of North America.*

7120. There are a few American books of agriculture, and republications there of most of our best works on the subject. Dean's *New England Farmer's Dictionary*, and Dwight's *Travels*, may be considered as giving an idea of the husbandry of that part of the country; and Roughley's *Jamaica Planter*, of the agriculture of the West India Islands. A number of interesting papers on the subject will be found in the transactions of the American, New York, Philadelphia, and other societies.

1744. *Bartram, John*, M.D., Philadelphia.

On the Salt Marsh Musc. On Oyster Banks and the Fresh Water Musc. of Pennsylvania. (*Phil. Trans. Abr.* ix. p. 70.)

1754. *Fleming, or Fleming, Malcolm*, M.D., of Brigg.

A Proposal in order to demonstrate the Progress of the Distemper among Horned Cattle: supported by Facts. York, 8vo.

1755. *Belgrove, William*.

A Treatise upon Husbandry and Planting. Boston, New England, 4to.

1764. *Elliot*.

Essays upon the Husbandry in New England. Lond. 4to.

1779. *Carner, Jonathan*, Esq., born in America in 1732; died at London 1780, in great poverty.

A Treatise on the Culture of the Tobacco Plant, with the Manner in which it is usually cured, adapted to Northern Climates, and designed for the Use of Landholders of Great Britain, with two Plates of the Plant and its Flowers. Lond. 8vo.

1789. *Anthill, Hon. Edward*, Esq., of New Jersey.

1. An Essay on the Cultivation of the Vine, and the Making and Preserving of Wine, suited to the different Climates of North America. (*Americ. Trans.* i. 181.)

2. The Method of curing Flax; and Observations on the raising and dressing of Hemp. (*Ib.* i. 266.)

1789. *Bartram, Moses*.

Observations on the Native Silk Worms of North America. (*American Trans.* i. 294.)

1789. *Carter, Landon*, of Sabine Hall, Virginia.

Observations concerning the Fly-weevil that destroys the Wheat: with some useful Discoveries and Conclusions. (*Trans. Americ. Soc.* i. 274.)

1790. *Dean, Dr.*

New England Farmer's Dictionary.

1810. *Destère*.

La Science du Cultivateur Américain: Ouvrage destiné aux Colons et aux Commerçans. 8vo.

1801. *Burdley, J. B.*

Essays and Notes on Husbandry and Rural Affairs. Philadelphia, 8vo.

1812. *Barton, Benjamin Smith*, M.D., professor of natural history and botany in the university of Philadelphia.

On the Native Country of the Solanum Tuberosum, or Potatone. (*Nic. Jour.* xxxi. 290.)

1823. *Roughley, Thomas*, nearly twenty years a sugar planter in Jamaica.

The Jamaica Planter's Guide; or, a System for Planting and Managing a Sugar Estate, or other Plantations in that Island, and throughout the British West Indies in general. Illustrated with interesting Anecdotes. 8vo.

Higgins, Jesse, of Delaware.

A Method of Draining Ponds in Level Grounds. (*Trans. Americ. Soc.* vol. 3. p. 323.)

Greenway, Dr. James, of Dinwiddle County, in Virginia.

Of the Beneficial Effects of the Cassia Chamæcrista, in rearing worn-out Lands, and enriching such as are naturally Poor. (*Trans. Americ. Soc.* iii. p. 226.)

CHAP. V.

Of the Professional Police and Public Laws relative to Agriculturists and Agriculture.

7121. *By Professional Police*, we mean those associations which agriculturists have formed at different times and in different manners for mutual benefit or instruction; and also those institutions for the same purpose established by the legislature, or of such a nature as to be considered public, or national: by laws we allude to those special legislative enactments which affect more particularly agriculture; these are so numerous that we must refer the reader to his lawyer or law dictionary.

7122. There are few or no *agricultural lodges*, of the nature of those of masonry or gardening. In Scotland it would appear something of this kind had existed among ploughmen at one time, as the passwords and initial ceremonies are talked of in some of the counties by old men. In Forfar, Kincardine, Banff, &c. it is not uncommon for ploughmen, as well as various descriptions of operatives, to belong to gardener's lodges. In the southern districts where sheep farming is followed, there are some shepherd's societies for mutual interchange of experience, and aid in case of losses of such sheep as are the shepherd's perquisite: there are some ploughmen's clubs in different places, and various associations among them of the nature of benefit societies, but these do not come under the description of professional.

7123. *Agricultural societies* for interchange of knowledge are of modern date, but they have increased rapidly since 1794: the number at present or lately existing in the British isles, is at least equal to the number of the counties. Societies of this description

are either general, as the board of agriculture and society of arts; national, as the Highland society and Dublin institution; particular, as the Bath and West of England society; provincial, as county societies; and parochial, as being limited to a few individuals within one parish; of this kind are farmer's clubs, ploughing societies, &c. In regard to the end in view, these societies either embrace the arts in general, the rural arts in general, or some branch of the rural art, as agriculture; or some department in that branch, as live stock, sheep, wool, &c.

7124. All these societies hold meetings at stated periods; most of them offer premiums for particular objects,—specimens of vegetable or animal culture or produce—agricultural operations,—moral and professional merits, as servants, &c.; some of them form a library and museum of models or full sized implements—a few publish transactions, and one or two, as the Dublin society, send out itinerant ploughmen and agricultural mechanics to instruct practical farmers. These societies are almost wholly supported, and the fund for premiums raised by the subscriptions of members, and by voluntary donations, legacies, &c.; but some, as the board of agriculture and the Dublin society, have received assistance from government.

7125. *Of English agricultural societies* the oldest is the society of arts founded in 1754, by Lord Folkstone, Lord Romney, Dr. Hales, and Shepley. They have published many volumes of transactions, awarded immense sums in premiums, and, on the whole, done much good. (See *Rees's Cyc. art. Society.*)

7126. *The Bath and West of England society* was founded in 1777, for purposes similar to those of the London society of arts: they have published some valuable volumes of transactions, and distributed various rewards, &c. (*Rees's Cyc. &c.*)

7127. *The board of agriculture* was founded under the authority of government about 1793; much was expected from this board, but, excepting the publication of the county reports, and the general attention which it called to agriculture, it may well be asked what advantages arose from it. Their *Communications*, in several quarto volumes, contain fewer valuable papers in proportion to their total number than either the London society of arts, or the Bath societies publications; in short, it has been ably shewn in *The Farmer's Magazine*, and the article *agriculture* in the supplement to the *Encyc. Brit.*, that the board never directed its efforts in a manner suitable to its powers and consequence; and that instead of discussing modes of culture, its attention ought to have been directed to the removal of the political obstacles to agriculture, and to the eliciting of agricultural talent by honorary rewards, &c. No idea is more erroneous than that of such a board, or any other doing much good by a national "experimental farm." Horticulture is much better adapted for improvement in this way than agriculture, but a few years will shew whether the immense garden of the London Horticultural Society will answer the expectation of the subscribers.

7128. *Of Welsh societies* there are only two or three of inferior note, which have been already noticed in the topography of the country.

7129. *Of Scotch societies* the principal now existing are the Highland society and the Dalkeith farming society.

7130. *The Highland society* of Scotland was established in 1785, to enquire into the state of the Highlands, to consider the means of their improvement, and the preservation of their language; it is chiefly supported by the subscriptions of its members at a guinea each, a year, and a grant of 3000*l.* from government, soon after its establishment. It has published 5 vols. of prize essays and papers, and now extends its prizes to all the low counties of Scotland. (*Farm. Mag. vol. 16—316.*)

7131. *Of Irish societies* the principal are the Dublin society and the Cork institution.

7132. *The Dublin society* was established in 1731, and incorporated in 1749. Arthur Young observes, that it was the parent of all the similar societies now existing in Europe; but the Edinburgh agricultural society, as we have seen, (775. and 801.) was established nearly ten years before. The Dublin society, in its present advanced state, is one of the most complete establishments of the kind that exists. (*Rees's Cyc. art. Dublin.*)

7133. *The farming society* of Ireland was established under the patronage of the Dublin society in 1801. The object is to improve the agriculture and live stock of the kingdom. (*Archer's Dublin, 160.*)

7134. *The Cork institution*, for applying science to the common purposes of life, originated in private subscriptions about the beginning of the present century; it has since been incorporated, and received the assistance of government, has a house, large botanic garden, and under its auspices are delivered lectures on chemistry, botany, agriculture, &c.; it is not, however, in a flourishing state, and has never been of much use.

7135. The principal county societies in the three kingdoms have been noticed in the topography of agriculture: many of them were established several years before the board of agriculture.

7136. The only other institutions for the improvement of agriculturists and agriculture are public professorships: of these there is one in the university of Edinburgh, established

classes, the propriety of being contented with the simplest and cheapest fare, is extremely pernicious to the best interests of mankind. Enconiums ought not to be bestowed on those who are contented with mere necessities : on the contrary, such indifference ought to be held disgraceful. A taste for the comforts, the enjoyments, and even the luxuries of life, should be as widely diffused as possible, and if possible, interwoven with the national character and prejudices. This, as it appears to us, is the best mode of attempting the amelioration of the condition of the lower classes. Luxuries, and if you will have it so, even wasteful habits, are incomparably better than that cold, sluggish apathy, which would content itself with what can barely continue mere animal existence." "In those countries," Ricardo judiciously observes, "where the laboring classes have the fewest wants, and are contented with the cheapest food, the people are exposed to the greatest vicissitudes and miseries : they have no place of refuge from calamity ; they cannot seek safety in a lower station ; they are already so low that they can fall no lower. On any deficiency of the chief article of their subsistence, there are few substitutes of which they can avail themselves, and dearth to them is attended with almost all the evils of famine." (*Sup. Encyc. Brit. art. Corn Laws.*) Such is the case in Ireland, where amidst the germs of the greatest riches and luxury, the inhabitants are contented to live on less than any other people in the world.

7140. *The taste of the superior patrons of agriculture is to be improved by visiting the best cultivated districts, reading agricultural works, attending agricultural societies, and, above all, by cultivating a farm, and establishing on it a systematic order and regularity in every detail.* Let such observe the hedges, gates, verges of fields, and the beautiful rows of turnips, of Berwickshire or Northumberland ; the correctly drilled beans of East Lothian, and the live stock of Leicestershire. But few are the proprietors of lands who either employ a proper bailiiff or demesne steward ; and of those who do, how few who do not limit and fetter them in their operations, or else neglect them and leave them to sink into that supine state in which the uppermost wish is to enjoy the comforts of the situation with the least possible degree of exertion ! Some proprietors desire to have their home farm managed with a view to profit, as the cheapest way of getting hay, straw, mutton, &c. ; these are sordid patrons : a home farm ought to combine an elegant orderly style of management, high kept horses, harness, implements, &c., well clothed servants, and every thing in a superior style to what is seen on common farms. Particular attention ought to be paid to the buildings, which ought to combine architectural design, fitness, strength, and elegance ; the roads ought to be like approaches to a mansion ; the hedges like those of gardens, and the green verges round the fields kept mown like lawns or grass walks, and the ditches, bridges, and gates in corresponding neatness ; the finest trees ought to be encouraged in proper situations, and correctly pruned, and substantial watering places formed and kept supplied. Every operation on plants, or the ground, performed in a garden-like manner, and no individual of any species of stock kept, of which a drawing might not be taken and preserved as a beauty. Even the dress and deportment of the servants on such a farm ought to harmonise with the rich culture, orderly display, and high keeping of the whole.

CHAP. II.

On the Improvement of Agriculture by the better Education of those who are engaged in it as a Profession.

7141. *By education is generally understood that portion of knowledge which is obtained at schools ; but in a more extended sense (as Mills observes) it may be defined the means which may be employed to render man competent for performing the part which he undertakes to perform in life with increased satisfaction to himself and others.* Education may thus be considered as extending to every thing which operates on the body or mind, from the earliest periods of our existence to the final extinction of life. It is unnecessary here to embrace the subject in its full extent, but we shall offer some remarks on the education of practical men in general, on the professional education of an agriculturist, and the general conduct and economy of his life.

SECT. I. *On the Degree of Knowledge which may be attained by Practical Men, and on the general Powers of the human Mind as to Attainments.*

7142. *The knowledge of languages, history, geography, arts, sciences, and literature, which an agriculturist, whether a ploughman, shepherd, bailiiff, steward, or rent-paying*

farmer, daily occupied with his' profession, may acquire, provided he begins at the earliest moment, say at fifteen years of age, and continues to employ his leisure hours in reading till he is twenty or twenty-five, is by no means inconsiderable; not that he can or need become learned; but, if desirous, he may become generally intelligent, render himself fit, as far as conversation is concerned, for good society, prove instructive and entertaining to others by his conversation, and provide a reserve fund of enjoyment, by laying up a store of ideas for reflection in misfortune, disease, or old age.

7143. *The utility of knowledge* to that part of mankind who are doomed to a life of mechanical labor, or rather who suffer themselves to be doomed to it, has been questioned; it is said to render them dissatisfied with their condition, to produce various other evils, and at all events in no way to add to their happiness or the good of society. To a man whose business in life is the mere mechanical performance of operations which any other animal might perform if furnished with hands, education is doubtless less necessary, than to a man whose business is to direct the operations of others; but it does not follow, that though less necessary, it may not be highly useful: if, for example, it renders him dissatisfied with his condition, it will, at the same time, be more likely than any thing else to lead him to some proper mode of improving it; or if almost unimprovable, education certainly will be more likely than a state of ignorance to teach patience and submission, by enabling him to reflect on the folly of grieving at what is inevitable, and the consequences of committing what is unjust or criminal to relieve himself. "The low Irish," Marshal remarks, "are sufficiently dissatisfied with their condition; those who know how to alleviate it by emigration, go to Britain or America; those who know nothing, stay at home, commit acts of violence, and are hanged."

7144. *To decide as to the utility of knowledge to the operative parts of society* would perhaps require a previous decision of the question, "what constitutes happiness?" The general answer is, the exercise of all our faculties of body and mind: every one who has lived thirty or forty years in the world, knows that there is no such thing as absolute happiness: the prince de Ligné, a man of great natural parts, with every advantage of person, birth, and wealth, and in favor at all the courts of Europe; fond alike of war, literature, gallantry, and agriculture, and who lived to be upwards of 90 years of age, has left on record that he was only perfectly happy two or three times in his life, and only for a few minutes each time. Forsyth (*Principles of Moral Science*, vol. i. chap. 1.) says, happiness is a thing not to be thought of, and all that men and women can do in order to make the most of their existence, is to occupy themselves and make progress in whatever they engage in; progress in enjoyment, or approximation to happiness may therefore be obtained.

7145. *The utility of knowledge to every human being* is consequently, in our opinion, unquestionable, on the mere principle of adding to enjoyment; nor do we believe that there is more danger from excess of knowledge in any particular class of society, high or low, than there is from excess in their eating or drinking. A number of men possessed of property or power by inheritance, favor, or chance, who are very conscious that they never could have acquired those advantages by the common competition of talent and industry, and who are in fact wrapt up in selfishness, are naturally jealous of the progress of knowledge; their secret maxim is to keep down the lower orders, and to impress on their minds only the duties of loyalty, religion, and, as Vancouver adds, hard work. This monopoly of power and knowledge, however, cannot be maintained for ever, and in every country is found rapidly yielding to the general progress of society. It is only those who have to dread this progress that fear the diffusion of education and liberal principles.

7146. *The terms knowledge and ignorance are entirely relative*: the knowledge of a modern chemist's porter would have subjected him to be hanged and burned in the days of the first popes; and any bricklayer's laborer of the present day who reads the London newspapers, has more correct ideas of the principles of political economy, than nine-tenths of the nobility in Russia and Spain. It is impossible to set limits to the knowledge which may be obtained by those who are destined even to the most severe and constant labor; the intelligence of the miners in Scotland and Sweden may be referred to as proofs. The miners at Leadhills have a regular library and reading society, and the works they make choice of are not only histories, voyages, travels, &c. but even works of taste, such as the British classics, and best novels and romances. The degree to which knowledge will prevail among any class of laboring men, will depend jointly on their own ambition; on the demand for or reputation in which knowledge is held, and on the opportunities of acquiring it. A dull, stupid person, with little native activity, will never desire to know more than what enables him to supply the ordinary wants of life; but where the workmen of any art are required to have technical knowledge of any particular kind, they will be found invariably to possess it. Thus carpenters and masons require some knowledge of the mechanical principles of

architecture, and working engineers of the strength of materials; and these kinds of knowledge are acquired by them without an hour's interruption of their daily labor; on the contrary, the habit of evening study renders them more steady, sober, and industrious than other workmen; than bricklayers and paper hangers, for example, whose employments require much less intellectual skill. If every cook-maid, before she could obtain a first-rate place, were required to be able to read *Apicius Redivivus* in the original tongue, there would be no want of learned cooks; and if no bailiff could obtain a first-rate situation who had not written a thesis in Greek, or who had not made the tour of Europe, there would soon be found abundance of bailiffs so qualified. A Caledonian, when he comes to the low country, soon acquires the English tongue, and if he has been taught latin, thus knows three languages. The servants at the inns on some parts of the continent, frequented by different nations, often acquire a moderate knowledge of three or four languages: a late custom-house officer on the island of Constatd, spoke and wrote ten languages; and the bar-maid at the hotel de Londres, at which we lodged in Moscow, in 1814, could make herself intelligible in Swedish, Russian, Polish, German, French, Italian, and English.

7147. *The certain way of obtaining anything*, is to be impressed with the necessity of possessing it, either to avoid the evil of being without it, to satisfy the desires of others as to ourselves, or our own desires. There is scarcely any thing that a rational man can desire that he may not obtain, by maintaining on his mind a powerful impression of the necessity of obtaining it; pursuing the means of attainment with unceasing perseverance, and keeping alive that enthusiasm and ardor which always accompany powerful desires. All may not acquire by the same degree of labor, the same degree of eminence; but any man by labor may attain a knowledge of all that is already known on any subject, and that degree of knowledge is respectable; what many never attain to, and what few go beyond.

7148. *The grand drawback to every kind of improvement* is, the vulgar and degrading idea that certain things are beyond our reach; whereas the truth is, every thing is attainable by the employment of means; and nothing, not even the knowledge of a common laborer, without it: there are many things, which it is not desirable to wish for, and which are only desired by men of extraordinary minds; but let no man fancy any thing is impossible to him, for this is the bane of all improvement. Let no young ploughman, therefore, who reads this, even if he can but barely read, imagine that he may not become eminent in any of the pursuits of life or departments of knowledge, much less in that of his profession: let him never lose sight of this principle—that to desire and apply is to attain, and that the attainment will be in proportion to the application.

SECT. II. *Of the Professional Education of Agriculturists.*

7149. In order that a *professional man should excel as such*, every other acquirement must be kept subservient to that of his profession. No branch of knowledge should be pursued to any extent that, either of itself, or by the habits of thinking to which it gives rise, tends to divert the mind from the main object of pursuit; something, it is true, is due to relaxation in every species of acquirement; but judicious relaxation only serves to whet the appetite for the vigorous pursuit of the main object. By the professional education of agriculturists, we mean that direction of their faculties by which they will best acquire the science and manual operations of agriculture, and we shall suppose agricultural pupils generally, to have no other scholastic education than some knowledge of reading, writing, and arithmetic.

7150. *All young men who intend embracing agriculture as a profession*, whether as ploughmen, bailiffs, stewards, land valuers, or rent-paying farmers, ought to undergo a course of manual labor for one or more years, in order to acquire the mechanism of all agricultural operations: when the pupil is not destined for any particular county, then he should be sent to a farmer in a district of mixed agriculture; as for example, East Lothian, where he would, if placed in a wheat and bean culture farm, see at no great distance the turnip system and feeding, and a few miles off, the mountain sheep-farming or breeding: when the pupil is intended to be settled in any particular county, he ought to be sent to a county as near as possible of similar soil and climate, where the best practices are in use, as from all the turnip counties, pupils should go to Northumberland or Berwickshire; from the clay counties to East Lothian, or the carse of Gowrie; from a mountainous district to the Cheviot hills, and Tweedale, &c.

7151. *The term of apprenticeship* completed, the future time of the pupil ought to be regulated according to the ultimate object in view: if he is intended as a ploughman, shepherd, or hedger, perhaps to introduce new practices in other counties, he may remain for a year or two longer with other masters in the same district, in order not

To do this effectually, some knowledge of sketching is of great use, and, if possible, ought to be acquired by every person intending to fill the situation of bailiff or steward. The knowledge of soils, plants, and their culture, is a very simple business compared with the knowledge of stock, which is not only of difficult and tedious acquirement but easily forgotten or lost: for one gentleman's bailiff that knows any thing of stock there are at least a score that know nothing.

7158. *In connection with professional studies*, the pupil may find it necessary, if his education has been neglected, to go on at his leisure hours with all the usual branches of education, either assisted by books alone, or by books and the best assistance he can procure. If his school education has extended to arithmetic, mensuration, mathematics, and drawing, he should occupy himself in acquiring a knowledge of botany, zoology, geology, and mineralogy, without a tolerable knowledge of each of which, he will ever be in the dark among modern agriculturists, and in reading books on the subject. Next, let him study the various arts and manufactures that have any relation to agriculture, and store his mind with all he can acquire from one of the best general *Encyclopædias*, as that of Rees, or the *Encyclopædia Britannica*, with its excellent supplementary volumes. If he will go farther, and if he wishes to know the extent to which he may go, he may consult what we have advanced on the subject of education in the *Encyclopædia of Gardening*.

SECT. III. *Of the Conduct and Economy of an Agriculturist's Life.*

7159. *A plan for the general conduct of life* should be fixed on by every one when he arrives at manhood, and steadily pursued for the time to come: most commonly such a plan is formed by the parents soon after the child's birth, and at the latest, when the boy is taken from school. The boy arrived at manhood, however, is entitled to examine this plan, and amend it, or devise another more congenial to his own notions; but the risk of any change of this sort by persons so young and inexperienced is so great, that no youth ought to venture on it without the utmost consideration and the firmest persuasion in his own mind: where the parent has done his duty, such changes of plan will not often be attempted, for, by the early infusion into the mind of a child, ideas of the pursuit that is intended for him, a taste for that pursuit or employment will grow up with him, and become as it were his own natural inclination. This will happen in most cases, but in some children the bias or force of nature for some particular purpose is so strong, that by no parental intreaties or reasoning can it be overcome; even where a sense of duty has induced compliance with a parent's wishes for a time, the dormant inclination has at last broke out and taken the lead. In such cases, the parent may generally conclude, that where the pursuit or purpose is not bad, the force of natural inclination will be more likely to command success than the influence of parental authority, and that a pursuit or business, commonly of little profit or repute, will be more profitable and respectable when followed by a genius powerfully impelled to it, than a profitable and reputable business followed by any one against their inclination.

7160. *The plan and conduct of life is in most cases determined by accidental circumstances.* The son of the laboring man grows up without any regular training or education for a particular end, and finds himself at the age of manhood engaged in rural labor, and apparently incapable of any other; his notions and his ambition are so limited that he dare not venture to desire a change for the better, for no man ever desires that which he thinks impossible to attain, and the mere idea of this impossibility, however erroneous, effectually restrains the attempt at improvement. The life of the ploughman or laborer, much as it differs from that of a man of eminent natural powers and superior education, is capable of much amelioration by being directed to a suitable end or object as the ultimatum, or in other words, by proceeding on a plan; plan indeed, as we have elsewhere observed, (*Encyc of Gard.* 2nd edit. 7778.) is predestination, as conduct is fate.

7161. *The greater part of mankind enter on life without any fixed plan or object in view*, or if they form some general notion of acquiring wealth or distinction, they form no plan by which it is to be accomplished; the consequence is, that such persons after blundering on through their best years, arrive at the end without having gained anything but experience, now of no use to them. No man is born in possession of the art of living, any more than of the art of agriculture; the one requires to be studied as well as the other, and a man can no more expect permanent satisfaction from actions performed at random, than he can expect a good crop from seeds sown without due regard to soil and season: when we look round and observe the quantity of misery in the world, the greater proportion is, or seems to be, the result of a want of plan, or of a bad plan of life: how many parents are unsuccessful in their struggles to maintain a large family, the result of too early marriages: how many find themselves arrive at old age with no other resource for support but charity, the consequence of want of foresight in expenditure: how many are suffering under poverty, brought on by their own want of frugality, or positive extravagance; or under disease from excesses and irregularities committed in the hey-day of life: and how many among those not born to inherit property, who, at no period of their life, have any other alternative between hard labor and deficient food, than disease and want.

7162. *Want of plan may not in every case be the cause of all this misery*, because, accident enters into life for something, both in the unfavorable as well as the favorable side of the question; but we have no hesitation in asserting, that want of plan, as a cause of misery, is as ninety-nine to a hundred: any plan at all, even a bad plan, is better than none, because those who set out on any plan will, in all probability, sooner discover its errors, if a bad one, and correct them, than those who set out on no plan, will discover the want of one, and form a good plan. The young man who is just setting out in life, may well tremble at the consequences of proceeding on the journey without the guide of a judicious plan; this plan he must form himself, because he alone feels what he wants, and what he can do to gratify them:—all that we can do is to offer a few hints.

7163. *In order to be able to form a plan* it is previously necessary to determine the object to be attained

vidual, the hope of bettering his condition in life is : it cheers him in adversity, encourages his industry, promotes his content, yet from this hope the major part of the agricultural laborers of England are excluded ; they toil indeed, but it is to continue, not to better their existence." (*Essay on the beneficial direction of rural expenditure*, p. 170. ; see also the succeeding chapters of these judicious and intelligent essays.)

7169. *The plan of life for the directive class of agriculturists* need hardly be pointed out ; the rise from a farm bailiff to a steward's bailiff, or to a demesne bailiff or steward, and thence to the general steward or factor of an estate, is an obvious object of ambition. In another direction he may rise through the different gradations of the commercial agriculturist, or, adopting the rank of counsellor or artist, he may become a salesman, appraiser, timber or land-surveyor, land-valuer, agent, or agricultural engineer : rarely, however, can he attempt the veterinary profession, or those of draftsman, author, or professor.

7170. *The remuneration to which a directive agriculturist is naturally entitled*, should be regulated by his professional abilities and experience ; that which he will commonly receive will be regulated by the quantity of agricultural talent and experience in the market ; it ought always to be such as will preserve him in a distinct class from the operatives, and render it worth his while to be honest, assiduously attentive to the interest of his employer, and of a polite and obliging manner. A handsome salary to such a servant is wise economy.

7171. *The object of the artist or counsellor agriculturist*, may be either to ascend to the rank of author or professor, conditions of more honor than profit ; or to realize property and become a proprietor cultivator. For a rent-paying farmer, no artist or author is at all adapted.

7172. *The legitimate object of a commercial agriculturist* is to rise in the different grades of his class, and become either a large farmer, a gentleman farmer, or, best of all, a yeoman, or proprietor cultivator (*propriétaire cultivateur*).

7173. *The profits to which a commercial agriculturist is entitled*, comparatively to that of other commercial men, are theoretically determinable by the risk attending the employment of his capital, and the skill requisite to prosecute his art ; but practically, this remuneration will depend on the quantity of skill and capital in the market. The risk attending capital employed in the culture of the useful products of the soil, is evidently less than the risk of capital employed in many or perhaps most manufactures ; and the skill requisite to enable any one to become a farmer, according to the customary practices of the country surrounding him, is less than that required for almost any branch of manufacture. In consequence of these things, there are men every where ready to become farmers ; hence the profits of farming are naturally less than those of most other pursuits ; but to counterbalance this, the farmer has several advantages peculiar to his profession. First, from the nature of his residence in the country, which assumes a certain degree of consequence, from its connection with a considerable group of out-offices ; these, surrounded by a garden, orchard, fields, woods, and other rural scenery, all in his occupation, and inhabited by servants in cottages, horses, cattle, sheep, and other domestic animals, all in subjection to him ; all these things give him a degree of consequence both real and apparent, and assimilate him more nearly to a lord of the soil, and to that sort of rural retirement and independence, the object of almost every commercial man's ambition, than any other mode of life short of the thing itself. Secondly, many trades and professions preclude (according to general prejudices) their followers from being gentlemen ; whereas, though every farmer is not a gentleman, yet any gentleman may become a farmer, without in any degree lowering his rank and character ; a farmer may, therefore, if he chooses to adopt the habits and manners of a gentleman, be reckoned as such. Thirdly, the farmer's products are in universal demand, and he is sure of a market at some reasonable rate, a fact otherwise with many manufactures. Fourthly, he is sure of a home, of the necessities of life, and in general, of most vigorous health. Fifthly, he is generally a man of more parochial influence than the tradesman or manufacturer.

7174. *No farmer ever makes a fortune by his profession* : the utmost exertions of the most skilful and industrious men in the most improved districts, seldom do more than enable them to keep pace with the times ; and the great majority, in all countries, lead a life of great labor and anxiety, and end as they began. No farmer, in a general way, can raise more than one corn crop in a year, and in this respect, the farmer of Russia and Poland has the advantage of the British farmer ; for the lands of the former being from five to eight months under snow, all root-weeds are destroyed, and the ground so loosened by the frosts and thaws, as to require very little stirring for the seed ; the rapid summer which succeeds ripens all annual plants that will grow there, nearly as well as in England, and better than in many parts of Scotland and Ireland. The British farmers, however, have the great advantage of perpetual pastures, owing to the mildness of our winters, but still no art of man will shorten the period of animal gestation, and originate a lamb or a calf in shorter periods than 5 months and 40 weeks. How often does the tradesman or manufacturer turn his capital in that time ? There are three varieties of professional farmers, however, which occasionally realize some property ; the grazier who feeds with oil cake, grains, and other artificial foods ; the dealer in corn or cattle, who has the art to buy at a falling and sell at a rising market ; and the dealer or jobber in farms, who sublets or sells his lease, or in purchases of land, who subdivides and sells estates. The profits of the first are not great, and those of the two last are attended with great risk : the only farmer whose lot is to be envied, lives under a landlord who does not take the full marketable price for his lands : such as Burdet, Coke, Bedford, Northumberland, and many others in the south, but few in the north or the west.

KALENDARIAL INDEX.

Through agricultural operations, in general, require less nicety as to the exact time of performing them than many of those of gardening, yet there are exceptions in respect to some field crops; for example, beans and turnips. It is proper to observe, therefore, that the *almanac time* in this kalendar is calculated for the meridian of London; but as a *kalendar of nature* is given for the metropolitan district, the almanac time may, in every part of the empire, be varied to suit the local climate and vegetation.

In general, other circumstances being alike, four days may be allowed for every degree, or every 70 miles north or south of London; in spring, operations may be commenced earlier in that proportion southwards, and later northwards; but in autumn the reverse, and operations deferred as we advance southwards, and accelerated as we proceed to the north. In every case allowing a due weight to local circumstances.

Our notices under each month extend only to a few of the leading features of country-work; — to attempt to insert every thing, or even most of the things that require attending to, we conceive impossible; and, if it could be done, quite useless. A man will always act better when guided by his own judgment, than when following implicitly that of another. Kalendarers should only be considered as remembrancers, never as directories.

JANUARY.

Weather at	Average of the Thermometer.	Greatest Variation from the Average.	Average of the Barometer.	Quantity of Rain.	REMARKS.
London	35 9	6	29 56	1.957 inch.	A cold January is reckoned seasonable; the air being drier during a low state of the thermometer than when it is a little above or below the freezing point; winter-cold is generally less felt by animals than that of March. Winds often prevail during this month. The kalendar of animated nature is much more to be depended on than the vegetable kalendar; for, excepting the catkins on trees, the state of the other plants during this month depends much on the character of the preceding autumn.
Edinburgh	34 5		29 191	2.994	
Dublin	39 92		29 721	2.697	

1. Kalendar of Animated Nature round London.

In the first week: shell-less snails (*helix*), and earth-worms (*lumbricus terrestris*) appear.

Second week: redbreast (*motacilla rubicola*) whistles, nut-hatch (*nitta europaea*) chatters, mistle thrush (*turdus viscivorus*) sings, and wagtails (*motacilla alba et flava*) appear.

Third week: the common lark (*skandala arvensis*) congregates.

Fourth week: snails (*helix hortensis*) and slugs (*limax ater et hyalinus*) abound in sheltered parts of gardens; the hedge sparrow (*motacilla modularis*) whistles, the large titmouse (*parus major*) sings, and flies appear on windows.

2. Kalendar of Vegetable Nature round London.

In the first week: some plants accidentally in flower; and others, as the laurestine, no, tinued from December.

Second week: winter aconite (*ranhith hyemalis*), Christmarose (*heloborus fetidus*) in flower, and hazel (*corulus avellana*) catkins beginning to appear: common honey-suckle (*loniceus periclymenum*) buds begin to appear.

Third week: primrose (*primula vulgaris*) flowers in sheltered places: daisy (*bellis perennis*), and chickweed (*saline media*) begin to flower.

Fourth week: mezerion (*daphne mezereum*) begins to flower; and sometimes spurry (*spergula arvensis*), pansy (*viola tricolor*), white scented violet (*viola odorata*), arch-angel (*lunium rubrum*), and coltsfoot (*tanisago purpurea et odorata*) show blossoms.

3. Farm-yard. (2740.)

Attend to cattle, whether in the open yard on straw and a few turnips, (1898.) in hammels for feeding, (6177.) or in stalls, (6174.) See that the weak are not driven from their proper share of green food by the strong; notice any in bad condition, and put them in a place by themselves for a few weeks. When the hay or straw is of inferior quality or flavor, sprinkle with salt water, which will make it more palatable.

Thrashing (2961.) goes on pretty regularly at this season for the sake of a supply of straw. In some districts it is common to thresh an hour every morning with candle-light during the three winter months, the candles being hung up in lanterns. See that the gudgeons and other places are kept oiled, and the teeth of wheels greased or soaped, or coated with anti-atition.

Implement not now in use may be repaired, also harnesses greased, ropes spliced, and various evening jobs executed, where it is customary to work a part of the winter evenings.

Men's lodges. (3856.) In some districts the unmarried farm-servants have a common living room in the farmery, with a sleeping-room over, or sleeping-rooms over the horses. It is the duty of the farmer or bailiff to see that these young men are properly occupied during the long winter evenings. A portion of every man's time will be taken up in mending his clothes or shoes, and sometimes in oiling and cleaning horse harness; the rest they ought to be encouraged to pass in reading, or otherwise instructing themselves. One may read aloud to the rest; one may instruct the others on any subject; a

master may be got in for an hour or two every evening, who would teach them all. A master suitable for this purpose will often be found among the married servants, or among the village mechanics. To serious studies may be joined recreative ones, such as the flute, violin, story-telling, singing, speech-making, dramatic attempts, &c. The bailiff or farmer should occasionally come and examine each lad, and bestow some mark of approbation on the most deserving.

4. Live Stock. (5546.)

Store fanns (6151.), whether of sheep or cattle, require considerable attention during the winter and spring months to supply straw and hay, with such green food as can be spared, to stock on scanty pastures; and to shelter during storms, especially of snow.

Lambs are dropped during this month by the Dorset sheep, and near London are generally kept in the house and fed. (6485.) These require regular attention.

Calves: fattening at this season (6167.) should be kept very clean, and their supplies of milk liberal. Calves to be reared as stock should never be dropped sooner than April.

Pigs (6538.), poultry (6686.), and stock in general, should be kept in good heart at this season, otherwise in the spring months they will be fit for nothing, and half the summer will elapse before they recover the bad effects of winter starvation.

Fish, when the ponds are covered with ice, require attention, to break holes to admit air. (8800.)

Bees if dormant do not require to be fed; but if the weather is so mild, or they are placed in so warm a situation as to occasion their flying about, they should be examined, to ascertain if feeding be requisite. (6827.)

5. Grass Lands. (5086.)

Dry soils and uplands should alone be stocked with cattle or young horses at this season. (5257.) Sheep should not be allowed to graze either on wet marshy meadows or on young clovers. (5005.) Grass lands, under a system of irrigation, may now be kept covered. (4455.) Clayey soils and others not properly drained should now have that operation effectually performed on the surface (5975.) or under it (5961.), according to circumstances.

Worms (6921.) on some soils do considerable injury to grass. Where the labor is not considered too much, and there is a water barrel at any rate, they may be killed by mixing powder of lime with the water, at the rate of one pint to ten gallons. On lawns, and in small paddocks, or in the care of *Firmus ornata* getting rid of worm casts is an object worth attending to, and this month, February, and October, are the best seasons for the operation.

6. Arable Lands. (4548.)

Plough when the soil is not too wet. Lead out dung and farm field dung, also compost heaps, with peat or other matters. See that drains, ditches, and water-furrows run freely, and answer their respective ends.

Beans (4764.) are in some dry situations planted in the last week of the month; and also pease, and sometimes oats, are sown. On the whole, however, it is better to defer the beans and pease till the first and second weeks of February, and the oats till the two last weeks of that month.

Spring wheat of the common kind (4622.) may be sown where the soil is suitable.

7. Fences (2767.), Roads (3280.), and Drains. (3909.)

Hawthorns may be planted in fence-lines, in any of the different modes. (2740.) Ditches, walls, palings, and all other fences of the common kind may be formed; but none where hollies or other evergreens are to be used. Repair by the different modes. (2794.) Roads and drains may be formed at all times and seasons.

8. Orchards (3770.) and Hop-grounds. (338.)

Prune trees and free them of moss. Where dipping may be practised, this is a good season. Note at 2 newly planted trees. Plant orchards. Trench graft v hop plantations. (3400.)

9. Wood Lands and Plantations. (3627.)

Prepare the soil for planting. Plant deciduous trees in mild weather. Plant and sow the larger trees, whether in places where they are finally to remain, or in nursery-grounds.

Fill timber and coppice not valuable on account of its being Stock up roots, stack them, and char them.

Prune deciduous trees; fill up vacancies. Cut hedges. (2790.) Gather any tree seeds not before gathered.

Drain wood-lands and cut paths or other openings through them, the leaves being now off the deciduous trees.

FEBRUARY.

Weather at	Average of the Thermometer.	Greatest Variation from the Average.	Average of the Barometer.	Quantity of Rain.	REMARKS.
London -	42 3	5	29 94	0.873 inch.	This month (the <i>spring</i> or <i>spring</i> last month of the year) is usually subject to much rain, or snow, after a accounted seasonable: the old proverb being, "Favour fill dike with either black or white." Round Lands the sap in vegetables shows evident symptoms of state about the middle of the month, and sometimes a week earlier. The animal calendar, and infrequency of snow-trees for this month will generally be found very accurate.
Edinburgh	36 6		29 556	1.269	
Dublin	43 78		30 091	2.21	

1. Kalendar of Animated Nature round London.

In the first week: bees (*apis mellifera*) come out of their hives, gnats (*culex*) play about, insects (*insecta*) swarm under sunny hedges, and the earth-worm (*lumbricus terrestris*) lies out; henchfinches (*fringilla*) flock, and the song-thrush, or throistle (*larkus musculus*), and common lark (*larkus arvensis*) sing.

Second week: the buntlings (*emberiza alba*), and innets (*fringilla linata*), appear in flocks; sheep (*ovis aries*) drop their lambs; geese (*anser anser*) begin to lay.

Third week: rooks (*corvus frugilagus*) begin to pair, and resort to their nest-trees of house-sparrows (*fringilla domestica*) chirp, and begin to build; the chaffinch (*fringilla caesia*) sings.

Fourth week: the partridge (*leucas perdix*) begins to pair, the blackbird (*turdus merula*) whistles, and the wood-lark (*larkus arvensis* or *arboris*) sings; the hen (*phasianus gallus*) sits.

2. Kalendar of Vegetable Nature round London.

In the first week: the snowdrop (*galanthus nivalis*), whin (*ulmar europaea*), white deadnettle (*lamium album*), polyanthus (*primula veris*) flowers; and the elder (*sambucus nigra*), and some roses and honeysuckles begin to expand their leaves.

Second week: common crowfoot (*rannunculus repens*), dandelion (*leontodon taraxacum*), and the female flowers of hazel (*corylus avellana*) appear.

Third week: veronica agrestis in flower; many of the poplar and willow tribe show their catkins; and also the yew (*taxus baccata*), alder (*alnus communis*), the tulip (*tulipa*), crown imperial (*frillaria imperialis*), and various other bulbs, boldly emerging from the ground.

Fourth week: the Erica carnea, wood strawberry (*fragaria vesca*), some speedwells (*veronica*), the groundsel, and sometimes the stocks and wall-flower (*cheiranthus*) in flower. Some sorts of gooseberries, apricots, and peaches, beginning to open their buds.

3. Farm Yard. (2740.)

See last month. In taking in stacks to thresh, destroy vermin as much as possible (6855.). Clear away the bottoming of straw, faggots, or other temporary matter, and leave the site perfectly neat and clean: the poultry will pick up what grains may have dropped. Be vigilant in keeping stock of every description in order: wintering cattle by frequent supplies of fresh straw and turnips, or other roots; horses by sound corn, and good pease-straw, or clover-hay, dispensing as much as possible with wheat and oat straw. The evening food should, occasionally at least, be of carrots or potatoes.

Poultry now lay freely, and if some indicate a desire to incubate, so much the better where an early brood is an object. **Men's lodges.** There are still a good many hours for mental improvement.

4. Live Stock. (5546.)

Sheep generally begin to lamb during this month, and require unremitting attention from the shepherd. (6361.) **At-**

tend to feeding lambs as before (6483.), and to milk on (6183.) and fattening calves (6167.)

5. Grass Lands. (5086.)

See last month. Manures, where applied to grass land, may be laid on at this season; and such old mow-lanes as to be broken up, may now be pared with a view to sowing next month.

The watering of meadows in warm situations may be very left off towards the middle of the month, to encourage the growth of the grass. (4036.)

6. Arable Lands. (4548.)

Beans should be put in during this month (4764.) **Plow** the poding, and for a ripened soil, be sown at different periods (4739.), and tares for sowing or seed. (4785.) On wet from the middle of this month to the middle of March 1846, unless on very old turf, where they may be sown later. It is common, but erroneous opinion, that old grass lands need to be broken up and sown with clover or lucerne, should be ploughed as early as possible, so as the first may have some of the furrow before seed time. But this, though most plausible, is most dangerous doctrine, it being found from experience, that lands so ploughed and sown, are always more fertile: have the plant of corn destroyed by the grub, we saw a other larvae. The only safe mode with such lands, is to plough them till about the middle of March, and then to plough/sow, and roll immediately afterwards. It was reported that by this practice the larvae of insects are bred so deep, that they have not time to reach the surface when the grain has germinated and grown out of the reach of their attacks, or probably they may be so deeply buried as to be unable to remain another season under ground; it being known to naturalists, that the eggs, larvae, and chrysalides of many insects, like the seeds of many plants, will, when buried in soil, or otherwise placed in circumstances not favorable to their immediate hatching or germination, remain there, until their principle of life till they can make their way, as in an accident placed in circumstances favorable for their development. The safest plan, however, to break up old grass is to pare and burn. (3478.)

Spring wheat of the common kind may now be sown only sown (4603.), and barley is also sown in some warm in the last week of the month.

7. Fences (3909.), Roads (3280.), Drains, Dikes (2767.), Ponds (4130.)

Hedges may be planted (2785.), grown ones pruned (2780.) once plashed or cut down (2784.), and imperfect ones paired. Walls built (2831.), water fences, and ponds lined (4130.).

8. Orchards (3770.) and Hop-grounds. (338.)

See last month.

9. Wood Lands and Plantations. (3627.)

As in last month. Where there is a sensory tree, and a kernel tree seeds may now be sown.

MARCH.

Weather at	Average of the Thermometer.	Greatest Variation from the Average.	Average of the Barometer.	Quantity of Rain.	REMARKS.
London -	46 4	4	30 20	0.716 inch.	The beginning of March usually concludes the winter; and the end of the month is generally indicative of the succeeding spring: according to the proverb, "March comes in like a lion, and goes out like a lamb." The season called this month the <i>lengthening month</i> , by reason of the increasing of the days. This is a laborious and trying month, both for men and cattle engaged in field operations.
Edinburgh	41 7		29 886	1.455	
Dublin	44 09		29 707	2.364	

1. Kalendar of Animated Nature round London.

In the first week: the ring-dove (*columba palumbus*) coos; the white wagtail (*motacilla alba*) sings, and the yellow wagtail (*motacilla flava*) appears. The earthworm (*lumbricus terrestris*), and the snail (*helix*), and slug (*limax*), engorge.

Second week: the juckdaw (*corvus monedula*) begins to come

to churches; the thrush (*corvus corax*) makes its spring note; brown wood-peckers (*ticia villosa*) hoot; and the small iridescent shell butterfly (*papilio urticae*, L.) appears. **Third week:** the marsh titmouse (*parus palustris*) begins to sing. Various flies (*musca*) appear. The first signs of the insects rank. The turkey-cock (*meleagris gallopavo*) sings and gobbles.

Fourth week: the yellow hammer (*embarus citreoline*) and green wood-pecker (*picus viridis*) sing; rooks, ravens (*corvus*), and house-pigeons (*columba*) build; the goldfinch (*fringilla carduelis*) sings. Field crickets (*scarrabaeus*) open their holes; and the common flea (*pulex irritans*) appears.

2. Kalendar of Vegetable Nature round London.

In the first week: various species of the pine, larch, and fir tribe in full flower; the rosemary (*rosmarinus officinalis*), the willow (*salix*) and bay (*laurea nobilis*) in blossom; various trees and shrubs beginning to open their buds.

Second week: the common honeysuckle (*lonicera periclymenum*), and some roses in leaf; crocus (*crucis*), and other sub-species, and some scilla in flower. Pilewort (*ficaria*), and creeping crowfoot (*ranunculus repens*), hepatica, and elder (*sambucus nigra*), sometimes in leaf.

Third week: saxifraga oppositifolia, draba verna, daphne pontica, and collina; and *lonicera nigra*, in flower.

Fourth week: the peach, nectarine, apricot, corchyrus japonicus, pyrus, japonica, crown imperial, saxifraga crassifolia, lusus sempervirens, and other plants, in warm situations, in flower, or just advancing to that state.

3. Farm Yard. (2740.)

Wintering cattle should be liberally supplied with food from this time, till they can be wholly turned to grass: as straw and hay gets drier at this season, more should be given, and the supply of turnips, or other roots, rather increased than diminished. Where oil cake, brewers' grains, and similar articles can be obtained, they are valuable auxiliaries. Fattening cattle (6183.) and milch cows (6174.) require continued attention to food, cleanliness, and moderate exercise. Working horses must be kept in good condition; if they fall off now, they will recover themselves in several months. Potatoes may now be cut into sets, preparatory for next month.

4. Live Stock. (5546.)

Sheep now drop their lambs freely; and none pay better than such as are turned off at this time, and finished off in April, on forward pasture. As turnips begin to run to flower about this time, they are apt to prove more than usually laxative, and therefore the stock supplied with them should have an extra supply of hay.

5. Grass Lands (5086.)

Meadows intended for mowing (5197.) should now be shut up, their surface having been freed from stones or other extraneous matters, the furrows or water gutters made completely effective, and, if the weather will permit, the surface bush-harrowed and rolled. Meadows which have been flooded during winter will, in favorable situations, show a considerable crop of grass by the beginning of this month. Turn off the water a week or ten days, till the surface gets firm: then feed with ewes and lambs, giving a little hay in the evening. Calves may also be turned to these meadows, but nothing heavier. The best mode is to harrow off the grass in strips, in the manner of eating turnips or clover in the places of their growth. Males (6321.) and worms (6354.) are best destroyed at this season.

6. Arable Lands. (4548.)

There are few hardy seeds, whether of agriculture or gardening, that may not be committed to the soil during this month. Spring wheat of the common kind (4425.) may still be sown; but if possible, not later than the middle of the month, oats

(4680.), rye (4694.), barley (4696.), canary corn (5485.), buck wheat (5490.), beans (4764.), pease, tares, &c.

Clover and the grass (4985.) may now be sown among young wheats after naked fallows, or among spring corn in lands in good heart and fine till.

Field beet (4926.), carrots (4962.), parsneps (4951.), and Swedish turnips should be sown the last fortnight of the month, provided the land is dry enough to be sufficiently cleaned, and pulverized to the depth of at least a foot. It more frequently happens that this cannot be got done till the beginning of April, and hence this class of seeds are seldom got in before the middle of that month. The carrots should be first sown, and the Swedish turnip will bear to be the latest. Lands intended for potatoes, cabbage, turnips, transplanted Swedish turnips, and other plants of the Brassica kind should be brought forward by such ploughings, cross ploughings, and workings with the grubber, as their nature and state may require. It is one great advantage of the common white turnip, that it admits of two months more time for preparing the soil than other root or Brassica crops. Summer or wheat fallows require at least one furrow in course of the month.

7. Fences (2767.), Roads (3280.), and Drains (3809.)

Horns and other hedge plants may be put in, but the earlier in the month the business is completed the better. This is an excellent season for making or repairing roads (3475.), drains, ponds, embankments, &c. the ground being still moist, and the days sufficiently long to admit of a man's laboring ten hours, or from six to six. In January, the ground is often too wet, or frozen, or covered with snow, and the days too short for advantageous day labor. In July and August the ground is too dry and hard for spade work, and day labor high on account of the proximity of hay time and harvest.

8. Orchards (3770.) and Hop-grounds. (5393.)

Finish pruning fruit-trees (3795.), and also digging round their stems, if that is practised (3806.). Where young orchards are grazed, see that the guards or fences to the single trees are in repair.

Form plantations of hops (5393.), and open up and dress the hills of established plants, returning the mould to their roots (5116.).

9. Wood Lands and Plantations. (3627.)

In the tree nursery, finish sowing acorns, keys, nuts, mast, berries, stones. Now also the lighter trees, as poplar seed (where it can be got), willow, birch, alder, elm, &c. Transplant from the seed bed, or from the nursery, at intervals, and attend to other parts of the usual routine culture.

New plantations may still be planted, endeavoring if possible to finish putting in deciduous trees with the month; using the puddle in dry weather (3666.), and fixing by water (3667.). Where large trees are introduced, the latter generally require to be staked.

Evergreens of the harder kinds, as the Scotch pine, spruce fir, &c. may be transplanted in the last week of the month, but not safely before. They are often put in during any of the winter months, but the result shows the impropriety of the practice.

Fill up (3683.) in young plantations and hedgerows, and fell timber, cut over coppice woods, and thin out young woods as in last month. When plantations are to be raised from seed where they are to remain for timber (3645.), this is the month for most seeds, but April is better for the pine and fir tribe. Sow the others in the second or third week of the month, and if redwood trees are to be mixed, a sprinkling of their seeds can be sown over the others in April.

APRIL.

Weather at	Average of the Thermometer.	Greatest Variation from the Average.	Average of the Barometer.	Quantity of Rain.
London	49.9	3	29.77	1.460 inch.
Edinburgh	46.3		29.873	2.414
Dublin	51.125		29.909	2.561

REMARKS.

The weather of this month is distinguished by the rapidity of its changes. It is generally stormy, interspersed with gleams of sunshine, hail, snow, some frost, and occasionally violent storms of wind. It is a month of the utmost activity to the cultivation of arable land, and during its course finishes the sowing of spring corn and grasses, and begins that of roots and leaves.

1. Kalendar of Animated Nature round London.

In the first week: the viper (*crotalus berus*) and woodlouse (*oniscus asellus*) appear: the misletoe-thrush (*lurdus ruficollis*) pairs; frogs (*rana*) croak and spawn, and moths (*phalaena*) appear.

Second week: the stone curlew (*charadrius edicnemus*) clamors; young frogs (*rana temporaria*) appear. The pheasant (*phasianus*) crows; the trout (*salmo trutta*) rises; and spiders (*aranea*) abound.

Third week: the crested wren (*motacilla regulus*) sings; the blackbird (*turdus merula*), raven (*corvus corax*), pigeon (*columba domesticus*), hen (*phasianus gallus*), and duck (*anas boschas*) sit; various insects appear; and the fieldfare (*turdus pilaris*) is still here.

Fourth week: the swallow (*hirundo rustica*) supplies the nightingale (*motacilla lucinia*) sings; the bittern (*ardea rotellaria*) makes a noise; the house martin (*irundo arctica*) appears; the black-cap (*motacilla atricapilla*) whistles; and the common snake (*crotalus natrix*) appears.

2. Kalendar of Vegetable Nature round London.

In the first week: the daffodil (*narcissus pseudo-narcissus*), the garden hyacinth (*hyacinthus orientalis*), the wallflower (*cheiranthus cheiri*), the cowslip (*primula officinalis*), the periwinkle (*vinca*), sloe (*prunus spinosa*), and various other herbs and trees in flower.

Second week: the ground-ivy (*glecoma hederacea*), gentianella (*gentiana aculeata*), palmaria virginica, the auricle, lilies sempervirens, onycholide, verna, and most of the common fruit-trees, and fruit-shrubs in flower.

Third week: some robinia, andromeda, kalmia, and other American shrubs; daphne laureola, ulmus campestris, chrysanthemum oppositifolium, mercularia p. emm. and other plants in flower.

Fourth week: the beech (*figus*) and elm (*ulmus*) in flower; ivy-berries drop from the racemes; the larch in leaf, and the tulip and some white narciss and fritillaries in flower.

3. Farm-yard. (2740.)

This month will in most situations terminate the wintering of cattle in the straw-yard. Straw is now very dry, therefore turnips, or other green food or roots, should be added in proportion.

Horses should be kept in high order on account of the hard work and extra exertion often required of them during this month. If there are carrots or potatoes to steam for them once a day, that will greatly aid hay and corn; if not, steam a part of the hay.

The accidental supplies of food for store pigs and poultry are less abundant during this month, because less time can be spared for threshing. There are fewer wintering cattle, and the yards are generally now cleaned out for the field dung-hills.

4. Live Stock. (5546.)

The end of this month is a good time for mares to foal (5960.), and they should have the horse accordingly. (5963.) Attend at the proper periods first to moderate working, and then to entire ease before foaling time. (5972.)

Cows must still be well fed with roots or steamed food, within doors, letting them taste the grass occasionally towards the end of the month. (6183.)

Sheep and lambs generally require a good deal of artificial food during the first half of this month. When the turnips are expended, clover hay, grains of barley which have been malted, rape cake or linseed cake, are the next resources. (5475.) About the end of the month they may be turned on the pastures, and then it is that mutton generally drops in price:—a hint to the farmer to sell all he can in the early part of April

Where there are water-meadows, the sheep and lambs will have been fattening during the whole of the month, — an immense advantage to a farmer.

Poultry of most kinds have now hatched their broods, and require looking after, to see they do not injure one another, nor are attacked by stronger enemies.

5. Grass Lands. (5086.)

See that the fences are kept up, and the gates regularly shut and fastened; as cattle newly let out are very apt to wander, and more ready to break through fences than when the herbage is more abundant.

Water-meadows (4055.) are generally shut up for hay about the end of the month, the ewes and lambs being then turned on young artificial grasses, or common provincial pastures, in a sufficiently forward state.

Mowing-meadows of the common kind (5197.), and clovers, and mixed grasses for hay, should be hand-picked, bush-harrowed, and rolled, early in the month, and then shut up for the scythe.

6. Arable Lands. (4548.)

Finish sowing all the spring crops (4659.), pease, tares, lucern (5023.), sainfoin, and all other herbage, plants, and grasses. (5086.)

Summer wheat (4601.) may be sown during the whole of the month, also barley in late situations (4659.), pease for late podding, and under peculiar circumstances, tares for cutting green in October and November.

Medicinal plants, as wood, madder, flax, hemp, mustard, &c.: all plants, as rape, poppy, and such plants as are grown for medicinal purposes or peculiar uses in domestic economy, as rhubarb, liquorice, buck or beech-wheat, &c. may all be sown or planted from the middle of late to the middle of this month. The first week in April will, in the greater number of seasons, soils, and situations, suit the most of them.

Carrot (4928.), field beet (4926.), parsnep (4951.), and Swedish turnip (4880.), if not sown the last week of March, should be finished during the first ten days of April. A bed of Swedish

turnips should be sown in the garden for transplanting in the field by the end of the month, or the first week in May.

The last fortnight of the month is the best season for planting potatoes (4823.); in the earliest situations this is now enough for a full crop; in the latest the middle of May will now be better. For very early crops for the supply of summer markets, dry rich sheltered fields may be planted in March. In the moors of Scotland they often plant in June, and still have a crop: there the potatoes are still obnoxious to late spring and early autumnal frosts.

7. Fences (2767.), Roads (3280.), and Drains (3909.)

All these should have been put in order before, so as to leave the hedges of the farm (6925.), and the borders of all-vert (6936.), time to assist in getting in planted crops, as pease, cabbages, &c. in the fields, cropping the garden, mowing, or otherwise dressing the orchard, shrubbery, lawn, or such ornamental or enjoyment ground, as the farmer intends to round his house.

8. Orchards (3770) and Hop-grounds. (5385.)

In some cases fruit-trees may be so overran with haws towards the end of the month as to make it worth while to have wet straw under them: but this rarely happens before the middle of May, and even then farm orchards may almost always be left to the birds and vigor of the trees. Hops are generally poked in this month, and the ground between the hills afterwards stirred with the cultivator or ridge as it is called in Kent. (5417.)

9. Wood Lands and Plantations. (3627.)

All planting and pruning of deciduous trees should be finished the first week of the month. Afterwards the planting and pruning of evergreens may commence; first the common pine and fir, and afterwards the holly, yew, and other evergreens. (3635.) If these can be watered, and staked, so much the better. Barkings oaks may in some warm situations be felled the last week of the month, but May is the usual period. (3748.)

MAY.

Weather at	Average of the Thermometer.	Greatest Variation from the Average.	Average of the Barometer.	Quantity of Rain.	REMARKS.
London -	56 61	2 5	30 02	0.794 inch.	Vegetation now goes on with great vigor, though there are often very cold and even frosty nights, which materially injure the blossoms of fruit-trees, and sometimes the young shoots of the hop and potato. Man, in common with other animals, being now full of life and vigor, the consummation of animal desire is frequent; but marriage is better deferred till September, when the offspring will be born in the May or June following, a season of the year when the poor man can better support the expenses of an accouchement than in the cold month respondent to marriages in May.
Edinburgh -	50 4		29 585	1.945	
Dublin -	52 193		30 061	1.812	

1. Kalendar of Animated Nature round London.

In the first week: the titlark (*Alauda pratensis*) sings, the cuckoo (*Cuculus canorus*) is heard; the guillemot (*Cypripus gobius*) appears; the redstart (*Monticola phoeniceus*), swift (*Hirundo apus*), white-throat (*Monticola cyathra*), and stinging-fly (*Cynops calcitras*) appear.

Second week: the turtle-dove (*Columba turris*) coos; the red ant (*Formica rufa*), the laughing wren (*Monticola curvica*), the common flesh-fly (*Musca vomitoria*), the lady-cow (*Coccinella bipunctata*), grasshopper lark (*Alauda locustae vocis*), and willow-wren (*Monticola sibilatrix*), appear.

Third week: the blue flesh-fly (*Musca vomitoria*) appears; black snails (*Helix nigra*) abound, and the large bat appears.

Fourth week: the great white-cabbage butterfly (*Pieris brassicae*), and dragon-fly (*Libella 4-maculata*) appear, the glow-worm shines, and the fern-owl, or goat-sucker (*Coprimalgus europaeus*) returns.

2. Kalendar of Vegetable Nature round London.

In the first week: geum urbanum, artemisia campestris; lily of the valley (*Convallaria majalis*), water-violet (*Najas palustris*), tulip-tree (*Liriodendron tulipifera*), and numerous other plants in flower.

Second week: the oak, ash, sweet chestnut (*Fagus castanea*), hawthorn (*Mespilus germanica*), the common maple (*Acer campestre*), horse-chestnut (*Aesculus hippocastanum*), barberry (*Berberis vulgaris*), and the aspen reprints in flower.

Third week: the water scorpion-grass, or forget-me-not (*Myosotis scorpioides*), lime-tree (*Lilium*), milk-wort (*Polypogon vulgaris*), nightshade (*Atropa belladonna*), and various American shrubs in flower, and the ivy (*Hedera helix*) in ear.

Fourth week: oaks, ashes, and beches now generally in leaf, and the mulberry (*Morus nigra*) beginning to open its buds. The cinnamon rose, and some other hardy roses in flower; and also the beamish (*Rubus fruticosus*), moneywort (*Lythrum salicaria*), columbine (*Quercus vulgaris*), and various other trees and shrubs in blossom.

3. Farm-yard. (2740.)

Feeding and wintering on straw and roots generally ends, and soiling (5004.) or pasturing (5017.) commences, in the first fortnight. Where high-flavored milk and butter are preferred to quantity, then pasturing on dry-bottomed uplands is to be preferred; but where quantity and richness is the object, soiling with clover and tares, and two or three hours' pasturing per day, for the sake of exercise, is the preferable system. Even on farms where there is nothing to mow but old meadow, soiling with that will be found more economical than pasturing it. A field of meadow in good heart, mown and eaten green, will, at a rough estimate, produce twice the quantity of milk it would have done if pastured, and four times as much as it would do in the form of dry hay.

The yards and pits are generally cleared of dung, urine, &c. at this season; and if no soiling goes on, they should be kept

clean during the summer, excepting what room is required in the dung of the few stock which are there contained, a pigs and poultry, or occasionally, as horses while harnessing, &c.

4. Live Stock. (5546.)

In turning cattle to grass, consider the different seasons of pasturing (5240.): adopt what suits your circumstances, and pursue it regularly. See that water is not wanting to each field (4127.): nor shade, rubbing posts, and shelter. (5256.)

Less cattle are generally dear during this month, from the number of persons who buy in and feed off on grass. If cattle or sheep are very numerous, they are found to feed best, and do less injury to the grass, in small herds or flocks than in large ones.

Marcs may have the horse during the first week, but not later, considering the season of parturition. (5968.)

5. Grass Lands. (5086.)

As most grasses send up their flower-stalks during the month, it is of importance so to stock pasture, as is on the down.

This is only to be accomplished in recent sown down-lands by overstocking, and not then completely if ryegrass prevails. When grass-lands are to be mown, the best crop of hay will be obtained by not pasturing after this month, from the number of persons who buy in and feed off on grass. If cattle or sheep are very numerous, they are found to feed best, and do less injury to the grass, in small herds or flocks than in large ones.

Where pairing and burning is wanted, this is a favorable season. (4271.)

Water-meadows having been eaten down in April, are generally watered for the first three or four weeks of this month, to bring forward the crop of hay. (4096.)

6. Arable Lands. (4548.)

Summer wheat (4601.) and grass seeds (4602.) may still be sown, but not profitably after the first week or ten days. Swedish turnip (4880.), mangel-worm, and yellow turnip, can be profitably sown, and also early crops of common white turnip where the soil is clean and duly prepared. (4567.)

The preparation of turnip fallows is the great business of the month, and next the stirring of naked fallows (4564.), and the culture, by horse and hand hoe, of corn and pulse in drills. In late situations potatoes may be planted during the whole month (4843.); and hemp and flax sown during the last fortnight. (5292. and 5337.) Tares for succedaneous sowing. (4754.)

7. Fences (2767.), Roads (3280.), and Drains (3909.)

Clean young hedge-rows. (2789.) Drains may now be advantageously designed, as the springs show themselves more ob-

spiraciously during winter. The rest in this department is more routine.

8. *Orchards* (3770.) and *Hop-grounds*. (5393.)

Grafted trees should be looked over occasionally, and any that the clay has dropped from recovered. Remove suckers and superfluous side shoots.

Stir and clean the *hop-plantations*: place the poles, tie the vines where necessary, and towards the end of the month, when the number of shoots wanted have taken the lead, cover

the stool or centre of the plant with a small hill of soil, to prevent it from sending up more shoots.

9. *Wood Lands and Plantations*. (3627.)

Continue to bark oak trees, and also the larch, and such others as are adapted for the farmer (3740), but finish, if possible, by the middle of the month. Keep newly-planted large trees properly staked, and all kinds of cultivated ground clear of weeds.

JUNE.

Weather at	Average of the Thermometer.	Greatest Variation from the Average.	Average of the Barometer.	Quantity of Rain.	REMARKS.
London -	63 22	2	29 93	0.332 inch.	The weather is sometimes cold at the beginning, but is generally agreeable and steady towards the middle of the month. By observing the columns indicating the greatest variation of the thermometer in each month, it will be seen that it varies, in London, only two degrees in June, which is less than in any of the preceding months. In July and August the variation is the same; but in March and October it is twice as much.
Edinburgh	57 2		29 666	1.935	
Dublin -	58 76		30 06	0.860	

1. *Kalendar of Animated Nature round London.*

In the first week: the sedge-sparrow (*passer arundinaceus*), the fly-catcher (*muscipapa atricapilla*), the wasp (*vespa vulgaris*), and several species of the bee and butterfly appear.

Second week: the burnet moth (*sphinx filipendule*), and forest-fly (*hippoboscus equinus*) appear; bees swarm.

Third week: several flies, butterflies, moths, beetles, and other insects appear.

Fourth week: insects abound; and singing-birds begin to retire to the woods, and leave off singing.

2. *Kalendar of Vegetable Nature round London.*

In the first week: water lilies (*nymphaea*, at *cuphea*) flower; also iris pseud-acorus, anemone colula, polygonum pericaria, malva rotundifolia, and numerous other plants.

Second week: the vine, raspberry, and elder in full flower; also various Scotch roses (*rosa spinosissima*), broom (*spartium*), nettle (*urtica*), and wheat in the ear.

Third week: the orchis, epilobium, iris xiphium and xiphoides, the hardy iris and gladioli, and a great variety of garden and field plants in flower; also the wheat and many of the pasture grasses.

Fourth week: some black and red currants ripe, strawberries in abundance; young shoots of trees and shrubs have nearly attained their length. (Oats and barley in flower; blue-bottle, scabious, (*centaurea cyanea*), and numerous others in bloom.

3. *Farm-yard*. (2740.)

Soiling is the principal operation now going forward (5004), and requires the utmost attention to the cleanliness of the animals, whether fattening cattle, feeding milch cows, or horses.

4. *Live Stock*. (5546.)

Wash and shear sheep (6441); examine flocks individually as to the fly (6436); see to shade for every description of stock when the weather is hot. Bees swarm during this and next month.

5. *Grass Lands*. (5086.)

Hay-making is now a principal business (5006. and 5217.) Any tussocks or flower-stalks (bents) which appear, not-

withstanding the close feeding of April and May, should now be mown (5901.); thistles and similar weeds cut close by the root (5542); pare and burn as in May (5971.)

clean out ponds, water-courses, wells, &c. See that clovers, tares, or other soiling crops are mown close to the soil.

6. *Arable Land*. (4548.)

(Great part of the turnip process goes on during the three first weeks of this month and the latter half of May. (4876.)) Jung fallows and otherwise bring them forward (4568.); draining (3909.), levelling, altering ridges, &c., as the case may require; weed broad-cast crops, and stir the soil between such as are in rows. Warming, where it can be practised, may now be commenced (1117.); thin out the first sown turnips. (4895.)

7. *Fences* (2767.), *Roads* (3280.), and *Drains*. (3909.)

Weed hedges, but avoid clipping them, which only creates a close surface of feeble shoots, that in the end becomes so thick as to exclude light and air from the central stems, and occasions their languishing and death. (2792.)

Dig and otherwise prepare materials for roads (3386.) and drains (3963.)

8. *Orchards* (3770.) and *Hop-grounds*. (5393.)

Insects, or other effects of what are called blights, can seldom be destroyed on so large a scale as that of the farm-orchard or hop-garden. Burning weeds or wet straw, litter, &c. will do something; and on a small scale, washing with lime-water, soap-suds, tobacco-water, or a mixture of these, will prove effectual. (5440.) Those who tie the binds or vine of the hop to the poles, instead of leaving them to nature, have generally completed the operation by the middle of the month. In some early spots the superfluous shoots are cut off about the end of the month.

9. *Wood Lands and Plantations*. (3627.)

The wood-man is now chiefly employed in trimming up the branches of barked trees, and otherwise disposing of what is unfit for timber purposes. (3745.) (Old cypresses or stools of trees, weeds, or burls, may now be advantageously stocked up, stacked, and, when dry, charred for fuel. (3762.)

JULY.

Weather at	Average of the Thermometer.	Greatest Variation from the Average.	Average of the Barometer.	Quantity of Rain.	REMARKS.
London -	66 3	2	29 89	2.194 inch.	This was called <i>hay month</i> by the Saxons; and though hay-making near London is generally finished in June, yet in places where manure is less abundant, it is chiefly made in this month. The farmer's prospects as to crop may now be determined as to almost every article cultivated.
Edinburgh	60 6		29 445	2.516	
Dublin -	61 13		29 929	2.614	

1. *Kalendar of Animated Nature round London.*

In the first week: the cuckoo (*cuculus canorus*) leaves off singing; the stone-curlew (*charadrius edicnemus*) whistles occasionally late at night, and the golden-crested wren (*motacilla regalis*) now and then chirps.

Second week: the quail (*tetrax ferrugineus*) calls; the cuckoo-spit, or frog-hopper (*oculus symmaris*) abounds.

Third week: young frogs migrate. Hens moult.

Fourth week: the great horse-fly (*tabanus bovinus*) appears; and partridges fly.

2. *Kalendar of Vegetable Nature round London.*

In the first week: enchanters' nightshade (*atropa lutea*) and lavender (*lavandula spicata*) in flower, and pinks and carnations in full bloom.

Second week: the fallen star (*tremella musciv*) appears; also puff-balls (*hydropison lentula*), and sometimes the common mushroom (*agaricus campestris*).

Third week: raspberries and gooseberries ripe, potatoes in flower, asparagus in berry, the illium in perfection.

Fourth week: the truffle (*tuber cibarium*) now hunted, or dug up in common and forests; nightshade (*adonis vireum*), daisy bit (*scabiosa succisa*), burnet-saxifrage (*piemontella saxifraga*), and a great number of plants in flower.

3. *Farm-yard*. (2740.)

As in June; between hay and corn harvest is generally a very good time for the farmer to make a tour to observe more extensively the practices of his own district, and to witness those of other districts.

4. 5. *Live Stock* (5546.) and *Grass Lands*. (5086.)

Lambs are now weaned (6428.) when not fattened off; as first they require the richest keep. As green food will now be abundant, every animal about a farm that can live and thrive, or answer its end by the soiling system, should be so treated. The weather being hot, cattle or sheep in fields must be frequently looked to, as to shade, water, and abundant keep. Suffering from thirst, or a want of food, they are very apt to break through fences, which at this season is more than usually injurious, on account of the state of the corn crops.

6. *Arable Lands*. (4548.)

Attend to weeding, hoeing, and otherwise moving the soil between rowed crops, more especially potatoes and turnips. Towards the end of the month, the first-sown white turnips will be in a state to thin out; and a farther thinning may be advantageously given to field beet, carrots, &c. at this season. Where pease are sown for podding, they will now be in

abundance for gathering; in warm situations sooner. Buck wheat may now be sown for autumnal food for game. (5490.)

7. Fences (2767.), Roads (3280.), and Drains. (3909.)

As in June.

8. Orchards (3770.) and Hop-grounds. (5393.)

Cherries, strawberries, gooseberries, &c. where grown as field-crops, are now in gathering, and towards the end of the month, fallen apples and plums for tarts. Hop-grounds are looked over, and the superfluous vine pruned off, &c. In Kent

and other places these prunings are often a perquisite of the pruner, who lays them aside as fodder for cows.

9. Wood Lands and Plantations. (3627.)

As in June; and prune the gum, which at other seasons is apt to bleed. (3629.) This season answers perfectly for pruning all sorts of trees, and if their leaves and spray were an object: for fodder, as in Sweden and Italy, no doubt it would be preserved. (3631. and 3635.) Wounds in trees do not now bleed as they sometimes do in spring and autumn, and they heal, and are in part covered over with bark, before the approach of winter. (3636.)

AUGUST.

Weather at	Average of the Thermometer.	Greatest Variation from the Average.	Average of the Barometer.	Quantity of Rain.	REMARKS.
London -	65 85	2	30 06	0.824 inch.	This is the barn, or harvest month of the Saxons; and, as every body knows, the busiest month of the agricultural year. It is, in consequence, the most profitable season for the laborer and his family, who are generally in full employ, and at an increase of wages, or perquisite, for four or six weeks at this season.
Edinburgh	60 6		29 828	1.996	
Dublin -	62 82		30 172	5.558	

1. Kalendar of Animated Nature round London.

In the first week: flying-ants (*formica*) appear; bees kill their drones; and the swallow-tailed butterfly (*papilio machaon*) appears.

Second week: young martins (*hirundo urticae*) and swallows (*hirundo rustica*) begin to congregate, and swifts (*hirundo apus*) to depart; the whame, or burrel-fly (*astruc lovis*) lays eggs on horse-dung.

Third week: the black-eyed marble butterfly (*papilio semele*) appears. Various birds resume their spring notes.

Fourth week: the nuthatch (*sitta europae*) chatters, the stone-curlew (*charadrius edicnemus*) whistles at night, the goat-sucker (*caprimulgus europaeus*) and young owls (*strix ulyde*) make a noise in the evening; robin-redbreast (*motacilla rubicola*) sings; and rooks roost on their nest-trees.

2. Kalendar of Vegetable Nature round London.

In the first week: mellilot (*trifolium officinale*), rue (*ruta graveolens*), yellow succory (*pictis hircacoides*), burdock (*arctium lappae*) in flower; the bread-corn ripe.

Second week: wild clary (*salvia verbenacea*), meadow-rue (*thalictrum flavum*), ploeghinan's spikenard (*conopsea squarrosa*), and various other natives in flower.

Third week: the mallow (*malva*), lavender, hollyhock (*alcea rosea*), and lobelias, among the garden-flowers; and the poly-gonums and potamogetons among the wild plants now in blossom.

Fourth week: the autumnal crocus (*calochicum autumnale*), aster, solidago, senecio paludosus, tansel (*dipsacus fullonum*), and various other plants in flower. The earlier varieties of all the hardy kernel fruits ripe.

3. Farm-yard. (2740.)

The rick-yard should now be attended to (2744.); stack-stands repaired or put in order: bottoming of faggots, and straw or rape haulm got together; thatch in readiness, and ropes made. (2947.)

At any spare period the teams may be employed carting out the summer-made dung to the wheat fallows, or to form field dunghills for spring crops, &c.

4. Live Stock. (5546.)

Select the stock of lambs to be kept as breeders. (6134.) Swine commonly luring their second litter of pigs in this month, which, owing to the dropping corn, is generally one of abundant keep, both for them and poultry. Farmers in some places look to the stubbles as a source of good food for their cows, as

others do to the fallows for keep for their sheep. When either is the case, the culture must be of a very inferior description.

5. Grass Land. (5086.)

Where meadows are manured, that operation generally goes on after the hay is removed, or during winter; the surface in the former case being hard with drought, and in the latter is frost. Aftergrass should in general be about up and reserved for later keep, and in some cases as a winter resource. Keep down weeds, tussocks, anthills, &c. Turn the water on meadow-lands as soon as the hay is removed, and let it remain all a third crop is in forwardness. (4058.)

6. Arable Lands. (4548.)

Went and stir among green crops, earth up potatoes (4855.), but by no means turnips, as that operation only prevents them from attaining a full size. (4893.) Reaping commences in the southern districts in the first week of this month, and in some by the middle of July. When the operation is executed by day-work, the most uninteresting inspection of the master is necessary; and even when the greatly preferable mode of reaping by the acre is adopted, he should be continually in motion from one party to another, to see that the operation is performed low and clean.

Naked fallows in late situations receive the seed furrow during this month, excepting in cases where the seed is ploughed in, an operation generally referred to the middle of September. Sow cabbage-seeds (4969.) for plants to put out in April next. Sow turnips after early peas which have been sown (4733.) or early cut-wheat, tares, cabbages, &c. or after hemp and flax, which are generally pulled by the middle of this month. (5292. and 5397.) Grass seeds sown alone at this season (4924.) will generally succeed better than at any other; they germinate as well in spring, but the heats of July often burn up the tender plants.

7. Fences (2767.), Roads (3280.), and Drains. (3909.)

As in the two preceding months.

8. Orchards (3770.) and Hop-grounds. (5393.)

Apples and plums of some sorts are now ripe. Grafts are in general be united. Budding performed, and pruning, if desirable, as observed last month under woods and plantations.

9. Wood Lands and Plantations. (3627.)

See last month.

SEPTEMBER.

Weather at	Average of the Thermometer.	Greatest Variation from the Average.	Average of the Barometer.	Quantity of Rain.	REMARKS.
London -	59 63	3 5	30 06	0.482 inch.	The temperature begins now to decline and to vary; the nights begin to lengthen, and heavy dews and diminished transpiration and evaporation promote the growth of grass, herbage, plants, and especially turnips. This is still a busy month with the agriculturist; in the warmest situations he is finishing harvest-work, and in the latest commencing it. Animals of most sorts are now fat; fruits are ripe; honey abundant; and most products of the earth in perfection and plenty.
Edinburgh	54 3		29 739	3.470	
Dublin -	59 35		30 239	3.021	

1. Kalendar of Animated Nature round London.

In the first week: young broods of goldfinches (*fringilla carduelis*) appear. The linnet (*fringilla linaria*) congregates. The bull (*bos taurus*) makes his shrill autumnal noise; and swallows (*hirundo rustica*) sing.

Second week: common owls (*strix flammea*) hoot. The nation butterfly (*papilio hysale*), and willow red under-wing moth (*phalaena pactis*) appears. Herrings (*clupea harengus*) are now cheap.

Third week: the ring curlew (*torquatus torquatus*) appears. The fly-catcher (*muscipapa atricapilla*) withdraws.

Fourth week: the stare (*sturnus vulgaris*) congregates. The wood-lark (*alauda arvensis*) sings. The woodcock (*scolopax rusticola*), and fieldfare (*turdus yllaris*) appear; and the swallow (*hirundo rustica*) departs.

2. Kalendar of Vegetable Nature round London.

In the first week: the fungus bilotus allus appears, traveler's joy (*clomatis alba*), and parnassia palustris in flower.

Second week: catkins of the hazel and birch formed; blossoms, and green, red, and black berries found on the bramble at the same time. Leaves of the sycamore, birch, lime, mountain ash, and elm begin to change color.

Third week: the ivy (*hedera helix*), laurel (*prunus lauro-cerasus*), and furze (*ulix europaea*) in flower.

Fourth week: hips, haws, and nuts ripe. Leaves of plane-tree (*platanus*) tawny; of the hazel, yellow; of the ash, yellowish-green; of the sycamore, dirty brown; of the myrica, pale yellow; of the ash, fine lemon; of the elm, orange; of the hawthorn, tawny yellow; of the cherry, red; of the hawthorn, bright yellow; of the willow, hoary.

3. Farm-yard. (2740.)

The rick-yard is now the chief scene of operations, in getting earlier crops thatched (2948.) and later ones stacked. (3628.) In all operations in this department attend, as far as circumstances will permit, to neatness. In the case of a proprietor of amateur, neatness, order, and high keeping are essential in every department.

4. *Live Stock.* (5546.)

There is generally abundance of fat cattle and sheep in the market during this and next month. Lean stock, especially crones and widders, are now brought in, and wintered or fed off on turnips. Wintering cattle (6177), also about the end of the month. Poultry and pigs are now fat, and honey may be taken from bee-hives.

5. *Grass Lands.* (5086.)

As in August. Newly sown grass lands should now be sparingly fed, in order to strengthen the plants for the winter.

6. *Arable Lands.* (4548.)

This is the chief season for sowing winter wheat, whether on naked fallows or after clover, tares, rape, or early crops of pease and beans. Potatoes are generally not taken up till the end of the month, in which case the sowing after that crop is later. (4613.) Sow tares to stand the winter (4795), and grass seeds

for permanent pasture, or a hay crop next season will succeed on good soils, if sown before the middle of the month. (4995.)

7. *Fences* (2761.), *Roads* (3280.), and *Drains.* (3909.)

Routine operations of mending, &c. as before.

8. *Orchards* (3770.) and *Hop-grounds.* (5393.)

Gather fruits for immediate sale, the keeping sorts not being yet ripe. (3776.) Walnuts for pickling not later than the first week. (3749.)

Hop-picking and drying. In the districts where this plant is much cultivated, is the great business of the month. (5425.)

9. *Wood Lands and Plantations.* (3637.)

Routine operations as in the two or three preceding months. plant evergreens during the three last weeks, and deciduous trees the last ten days. (3635.)

OCTOBER.

Weather at	Average of the Thermometer.	Greatest Variation from the Average.	Average of the Barometer.	Quantity of Rain.
London -	52 81	4	29 69	3.027 inch.
Edinburgh -	49 7		29 339	3.334
Dublin -	51		29 76	2.798

REMARKS.

The weather of this month is very uncertain. Before those rains, snows, or frosts which constitute the practical commencement of winter, there is generally two or three weeks of settled weather: sometimes these weeks are in October, sometimes partly in November. These weeks afford a last resource for bringing forward neglected operations.

1. *Kalendar of Animated Nature round London.*

In the first week: the red-wing (*terdus iliacus*) arrives. Snakes and vipers bury themselves.

Second week: hooded crows (*corvus cornix*) and wood-pigeons (*columba palumbus*) arrive; hen-chaffinches (*fringilla caerulea*) congregate, and prepare for migration, leaving their males in the country.

Third week: the snipe (*scolopax gallinago*) appears in the meadows. Wild-geese (*anas sylvestris*) leave the fens, and go to the ryelands.

Fourth week: the tortoise (*testudo graeca*) begins to bury himself in the ground; and rooks visit their nest-trees. Some larks (*alauda*) sing, and the woodcock (*scolopax rusticola*) returns. Spiders' webs abound.

2. *Kalendar of Vegetable Nature round London.*

In the first week: strawberry-tree (*arbutus unedo*), holly (*lex aquifolium*), China hollyhock (*alcea chinensis*), and China aster (*aster chinensis*), in bloom.

Second week: catkins of some species of *salix* formed; leaves of the ash almost all off; of the Spanish chestnut, yellow; of the sugar-maple (*acer saccharinum*) scarlet; of the common birch, yellow and gold; and of the weeping-birch, gold and bright-red colored.

Third week: clematis calycina in flower. Some horse chestnuts and acacias quite denuded of leaves.

Fourth week: various plants, especially annuals, continue in flower. Leaves of marsh-elder (*sambucus alba*), of a fine pink; of stag's-horn sumach, of a purplish-red; of the American oaks, of fine shades of yellow, orange, red, and purple.

3. *Farm-yard.* (3740.)

This is the season of rural plenty, affording an opportunity, both to men and animals, for laying in a large stock of health, to enable them to support the severity of the coming winter. Operatives should now buy in their winter stores of potatoes, fuel, &c. and ridge up their garden ground, not under crop, for the winter.

[Crops being generally in the tick-yard by Michaelmas, and the root and herbage crops not taken being at or near maturity, the first of October is the most suitable season for a farmer to take stock and ascertain his annual profit or loss. Michaelmas being also the most general term of entry and removal, especially in the case of arable farms, is another reason why agricultural accounts are conveniently made up to this period. (1309.) Examine your household accounts, and if your expenses have exceeded your income, or even come up to it, look over the particulars with your wife or housekeeper, and see on which you can retrench. This is an essential process for all who would proceed in life with any thing like peace of mind, or the permanent respect of their neighbors. (4545.) Remember that very small indeed is the net income of a rent-paying agriculturist.

Michaelmas is also the general term for hiring farm servants by the year; but the seldom agricultural operatives are changed the better, unless in the case of senseless, indolent, or viciously inclined persons, who degenerate unless frequently removed.

4. *Live Stock.* (5546.)

Cattle and sheep not sufficiently fattened on grass or herbage whether by pasturage or soiling, should now be put on other food, to complete them for the butcher. Oil-cake, grains, turnips, carrots, or, in default of these, bruised corn may be used. The same observations may be applied to hogs, which are generally in good condition at this season. (6570.)

Hog porridge. A mixture of oatmeal and water, or any other meal and water, left till it becomes sour, as practised by the millers in the northern counties, will feed hogs rapidly; but milk and pease meal make the finest pork in the world.

The teams which have been soiled during summer, may now be put on hay, straw, and carrots, or other roots, by degrees. (6083.)

5. *Grass Lands.* (5086.)

Where these are manured, this is a good season for the operation (3208.); choose dry weather.

6. *Arable Land.* (4548.)

Potatoes (4825.), carrots (4926.), field beet (4962.), parsneps (4961.), and Swedish turnips, may now be taken up and housed, and the ground sown with wheat. This grain (4826.), rye (4630.), barley (4659.), in some situations, and tares (4795.) may still be sown in the milder districts. Embrace every opportunity to give the first furrow to fallows (4568.), whether for green crops or otherwise. In general all lands that are to have two or more furrows before they are sown or planted, should be ploughed as soon as possible after harvest; but not so lands that are to be sown on one furrow, which are better ploughed in January and February. It is a great mistake to suppose that ploughing land in autumn destroys the eggs or larvae of insects (5916.), or the seeds of weeds; on the contrary, it may often, by giving them a deeper covering, preserve them better from the winter's frost, or, what is much more destructive, from being devoured by birds. There are few subjects less generally understood than the economy of nature in regard to the eggs of insects and worms. (Turn to 5863. and 6941.) See that water furrows and drains run freely, and that fences and gates are in repair.

7. *Fences* (2761.), *Roads* (3280.), and *Drains.* (3909.)

Hedges may now be advantageously planted (2785.), grown ones pruned (2790.), old ones plashed (2796.), and imperfect ones repaired. (2800.) The Northumberland practice as to hedges (7045.) well deserves the study of the more southern agriculturist. Roads and drains may be made or repaired at this season, and in spring, with better effect than during the heat and drought of summer. Road materials now bind better, and land-springs show themselves more distinctly.

8. *Orchards* (3770.) and *Hop-grounds.* (5393.)

The winter fruits may now be gathered, and either spread in an airy loft or upper floor, there to remain till used, or sweated in heaps, to extract a part of their moisture, and then buried in dry sand, or packed in close boxes or casks, to be kept in a cool and dry cellar. (1797. and *Encyc. of Gardening*, 2289.)

Fruit trees of every kind may now be planted (3793.) and pruned. (3798.)

Hop-picking is generally completed the first week of the month; and as soon afterwards as convenient, the vine and poles removed, and the latter stacked till next spring. (5432.) Young hop plantations may be formed (5398.), and the soil among established grounds manured and ploughed. (5411.)

9. *Wood Lands and Plantations.* (3637.)

Hedges and plantations of evergreen trees may be made during the first week of the month; and no period of the year is better for transplanting all kinds of hardy shrubs.

Timber and coppice may be felled, and in general every operation preparatory to planting, as well as the operation itself, may go forward.

NOVEMBER.

Weather at	Average of the Thermometer.	Greatest Variation from the Average.	Average of the Barometer.	Quantity of Rain.
London -	44 44	4	29 68	2.527 inch.
Edinburgh -	41 1		29 638	4.514
Dublin -	43		29 74	0.394

REMARKS.

This is the windy month of the Saxons; it is generally also cold and moist, and one of the most disagreeable for the laboring agriculturist; but he may console himself with the shortness of the day, and hail the approach of evening, when he may lay aside his wet dress and fortify his mind by converse with books, or enjoy the comforts of his fire-side, and the solace of his wife and children; reading to or otherwise instructing them, or mending his boots or shoes.

1. Kalendar of Animated Nature round London.

In the first week: the buck (*caprea caprea*) grunts.

Second week: the golden plover (*charadrius pluvialis*) appears.

Third week: snails (*limax*) and slugs (*helic*) bury themselves.

Fourth week: greenfinches (*fringilla montifringilla*) flock. The winter moth (*geometra brunearia*, Sam.), and the common flat-body moth (*geometra epyllus*, Sam.), appear in gardens about the end of the month.

2. Kalendar of Vegetable Nature round London.

In the first week: a few plants in flower, by accident, chiefly annuals, according to the season.

Second week: the fungus *helveta mitra* appears. *Laurustinus* in flower.

Third week: *calycanthus praecox* in flower.

Fourth week: some primroses show flowers at this season; and some plants, unnaturally in flower, still continue if the weather is temperate.

3. Farm-yard. (2740.)

Wintering cattle are now introduced to the straw yards (2740.) or tramracks (2677.), and others to stalls for feeding or fattening. Live stock in general ought to be kept in good condition at this season, otherwise they are apt to fall off towards spring. Threshing goes on at intervals to supply straw. (2961. and 2623.)

4. Live Stock. (5546.)

See Farm-yard.

5. Grass Lands. (5086.)

Manure in dry weather (5206.); turn the water on meadows adapted for irrigation (4038.); destroy anthills (5202.); drain by surface gutters, or other means, where that operation is requisite; clear out water furrows for the same purpose; admit cattle and horses only on the driest pastures; see that sheep have shelter, and especially Dorset ewes likely to lamb next month.

6. Arable Land. (4548.)

See that water furrows and drains run unobstructed; plough and cart out manure, as weather and other circumstances permit.

7. Fences (2761.), Roads (3280.), and Drains. (3909.)

As in last month; and see that they are in effectual repair, and fairly used.

8. Orchards (3770.) and Hop-grounds. (5393.)

Complete the operations of last month, where interrupted, deferred, or neglected.

9. Wood Lands and Plantations. (3627.)

As in last month, excepting when the weather is unfavorable. Felling all kinds of timber and coppice not adapted for harking for the tanner, may now go on freely. (3740.) Willowen for baskets may be cut over (3738.), and baskets, hampers, crates, and hurdles, made by the woodman and hedger.

DECEMBER.

Weather at	Average of the Thermometer.	Greatest Variation from the Average.	Average of the Barometer.	Quantity of Rain.	REMARKS.
London -	41 4	3	29 64	1.124 inch.	Winter month, Sax. Cold but dry. The agricultural operations are chiefly of the laborious kind; but the days are short and the nights long. In the last week the young operator should examine himself as to his professional and intellectual progress during the bye-past year, and form plans for further improving himself for the year to come. Knowledge is a lever by which a man may raise himself as high as he desires.
Edinburgh -	38 9		29 66	2.598	
Dublin -	36 34		29 723	2.916	

1. Kalendar of Animated Nature round London.

The mole (*talpa europæa*) throws up hillocks. The December moth (*erogaster populi*, Sam.) appears about the beginning, and the yellow-line quaker (*noctua flavilines*, Sam.), about the end of the month.

2. Kalendar of Vegetable Nature round London.

Some of the last month's plants continue in flower, according to the weather.

3. 4. Farm Yard (2740.), and Live Stock. (5546.)

Threshing, and otherwise preparing corn and straw for the market, and the use of the working, fattening, wintering, and store stock are the main operations. Next, the regular supply of live stock with food, and cleaning and littering them. Fattening stock should be particularly attended to, especially house lamb (5486.) and calves (5167.)

The supply of turnips for cattle and sheep is liable to be interrupted by severe frosts, if the precaution of housing a quantity (4904.), or setting them (4905.), is not taken in time. Where oil cake, rape cake, or dust, (3472.) brewers or distillers' grains (4656.) are used, supplies must be secured; and where hops or cattle are fed on meal and water mixed and soured, a quantity must always be kept in mixture; as a week or ten days in temperate weather, and a longer period during frost, is requisite to induce the fermentation.

5. Grass Lands. (5086.)

See that they are not poached: that water furrows, gutters, drains, and ditches are in repair; and where manuring is prac-

tised, cart it out in frosty weather where there is no danger of injury from the feet of horses or cart wheels. Unless labor is very cheap, carting earths or earthy composts on grass lands will not pay the expenses; they produce more effect on arable lands.

6. Arable Lands. (4548.)

See that all the modes of drainage are effective. (3857.) Plough and cart out manure according to weather and other circumstances.

7. Fences (2761.), Roads (3280.), and Drains. (3909.)

Plant hedges (2784.) and build walls only in temperate weather, as frosty air injures the roots of plants, and frozen humid mortar, thereby effectually preventing its setting. Roads and drains may be made and mended in all weathers that admit these operations.

8. Orchards (3770.) and Hop-grounds. (5393.)

Clear old trees of moss or mistletoe; but prune only in mild weather. Dig and dung at any time.

9. Wood Lands and Plantations. (3627.)

Fell timber or copse of sorts not adapted for harking. (3740.) Stock or grub up tree roots, stacking them for fuel or charcoal. (3762.) Trench, dig, or otherwise prepare ground for planting; but lift plants from the nursery, and re-insert them in plantations only in mild weather, and when the soil does not parch by treading, &c. The rest as in November.

GENERAL INDEX.

N.B. The Numbers refer to the Paragraphs, not the Pages, excepting in the case of the List of Authors, where they refer to the page and the year in which the Author published: in such cases the word page, and letters A. D. are prefixed.

- ABBATE**, Antonio, his work on agriculture, page 1177, A. D. 1808.
- Abcille**, F., his work on agriculture, page 1173. A. D. 1791.
- Abele poplar, the largest in England, 6996.
- Aberdeenshire, agricultural survey of, 7066.
- Aberdeenshire cattle, 6126.
- Abstergent remedies, in farriery, are those used for the purpose of resolving or discussing tumors and concretions on the joints and other parts of animals. They mostly consist of volatile, stimulant, and saponaceous matters, 5906.
- Abyssinia, agriculture of, 1041.
- Acclimating tender animals, 6634.
- Acclimating vegetables, 1728.
- Account books of farmers, 4509; journal, 4512; cash-book, 4514; stock, 4520; books for a common farmer, 4521.
- Acids of plants, how obtained, and their uses, 1397; oxalic acid, 1398; acetic acid, 1399; citric acid, 1400; malic acid, 1401; gallic acid, 1402; tartaric acid, 1403; benzoic acid, 1404; prussic acid, 1405; composition of vegetable acids, 1406.
- Adam**, James, Esq., his work on agriculture, page 1166. A. D. 1789.
- Adams**, George, his work on agriculture, page 1170. A. D. 1810.
- Adanson**, Madame Aglae, her work on agriculture, page 1175. A. D. 1822.
- Africa, agriculture of, 1040; Abyssinia, 1041; Egypt, 1045; Mahometan states, 1066; western coast, 1077; Cape of Good Hope, 1087; eastern coast, 1114.
- Age of horses, criteria of, 5856; deceptions practised, 5858.
- Agricultural authors of England during the sixteenth century, 231.
- Agricultural circumstances of Italy during the time of the Romans, 63.
- Agricultural edifices, 2657; buildings for live-stock, 2661; repositories and working places, 2688; farmer's dwelling house, 2712; cottages for farm servants, 2718; stack-yard, and other yards, 2740; farmeries, 2757.
- Agricultural encampments of Morocco (figured), 1075.
- Agricultural establishment of Hofwyl, near Berne, 343.
- Agricultural establishment of Rossore, in Tuscany, 297.
- Agricultural establishments by Buonaparte, 376.
- Agricultural fête of the Chinese, 1004.
- Agricultural implements, 2373; tools, 2374; instruments, 2401; utensils, 2433; hand machines, 2447; tillage implements, 2477.
- Agricultural implements, on the choice of, 4486.
- Agricultural implements of the Romans, 109; plough, 110; cultivator, 114; harrow, 115; rake, 116; hoe, 117; spade, 120; reaping-hook, 123; threshing implements, 124.
- Agricultural implements of Flanders, 498.
- Agricultural implements, their invention in Egypt, 10.
- Agricultural labors of the simplest kind, 2884.
- Agricultural operations, 2875.
- Agricultural operations, mixed manual, 2946.
- Agricultural operations of Flanders, 508.
- Agricultural operations of order and management, 3123.
- Agricultural operations of the Romans, 126.
- Agricultural operations of the scientific kind, 3053; measuring land, 3054; taking levels, 3059; dividing and laying out lands, 3066; estimating weight, power, and quantity, 3078; estimating value, 3083; professional etiquette as to plans and reports, 3106.
- Agricultural operations with plants, 2903.
- Agricultural operations with laboring cattle, 2992; for the care of live stock, 2993; on the soil, 2998; with the crop, 3034.
- Agricultural produce of the Jews, 36.
- Agricultural servants, choice of, 4492; bailiff, 4493; ploughman, 4494; shepherd, 4502; laborers, 4503; apprentices, 4505.
- Agricultural servants of the Romans, 85.
- Agricultural societies, number of, in England and Wales, by Farey.
- Agricultural survey of England, 6991.
- Agricultural survey of Scotland, 7046.
- Agricultural survey of the British Isles, 6989.
- Agricultural writers of antiquity, 7.
- Agricultural writers of the Romans, 44.
- Agriculture, as affected by civil, political, and religious circumstances, 1244; civilization and refinement, 1245; political state of a country, 1246; religion, 1247; natural character of the people, 1248.
- Agriculture, as influenced by geographical circumstances, 1222; climate, 1222; culture, 1224.
- Agriculture, as influenced by physical circumstances, 1232; temperature and light, 1233; elevation, 1234; soil, 1237; moisture, 1238.
- Agriculture as practised in Britain, 3142.
- Agriculture, British, literary history of, 781; Tull, Bradley, Stillingfleet, Harte, Young, Marshall, &c., 781; Donaldson, 782; Belhaven, 783; Maxwell, 784; Adam Dickson, 785; Lord Kalmes, 786; Wight, 787; Farmer's Magazine, 789; societies, 790; professorships, 791; county reports, 793; Sinclair, 794.
- Agriculture, British, professional history of, 755; drill husbandry, 756; live stock, 765; implements and machines, 770; Small's plough, 770; improving leases, 773; agricultural societies, 775; draining, 776; threshing machine, 777; farmeries, 780.
- Agriculture, British, statistics of, 6923; present state of, 6924; different descriptions of men engaged in its practice, 6925; different kinds of farms in Britain, 6981.
- Agriculture, British, topographical survey of, 6989. England, 6991; Wales, 7046; Scotland, 7043; Ireland, 7074; (See the different counties of each, and under each county the following heads.)
1. Geographical state and circumstances;
 2. State of property;
 3. Buildings;
 4. Mode of occupation;
 5. Implements;
 6. Enclosing;
 7. Arable land;
 8. Grass lands;
 9. Gardens and orchards;
 10. Woods and plantations;
 11. Improvements;
 12. Live stock;
 13. Rural economy;
 14. Political economy;
 15. Obstacles to improvement;
 16. Miscellaneous observations;
 17. Means of improvement.

Agriculture, "British," political history of, 742; laws on wool, 743; on corn, 744; roads, 750.
 Agriculture considered as a science, 1259; object of the art, 1261; mode of instruction preferred, 1262; mode of study recommended, 1263.
 Agriculture, history of, during the middle ages, 179.
 Agriculture, history of, in ultra European countries during the middle ages, 257.
 Agriculture, in regard to the state of society, its divisions, or kinds, 1249; agriculture of science, 1250; of habit, 1251; Barbarian culture, 1251; economy of savages, 1253.
 Agriculture, its classical history, 4.
 Agriculture, its geographical divisions, or kinds, 1227; agriculture of irrigation, 1228; of manures and irrigation, 1229; of draining and manures, 1230; fishing and hunting, 1231.
 Agriculture, its history among ancient and modern nations, 2.
 Agriculture, its history from the deluge to the establishment of the Roman empire, 5.
 Agriculture, its origin and history, 1.
 Agriculture, its physical divisions, or kinds, 1239; agriculture of water-fed lands, 1240; of sun-burnt lands, 1241; of mountains, 1242; of plains, 1243.
 Agriculture, its traditional history, 2.
 Agriculture, literary history of, in England during the seventeenth century, 246.
 Agriculture of Abyssinia, 1041.
 Africa, present state of, 1040.
 Algiers, 1039.
 Amazonia, 1218.
 Ancient Greeks, 17.
 Ancient Moors, 689.
 Arabia, 870.
 Asia, present state of, 846.
 Asiatic Turkey, 847.
 Asiatic islands, 1012.
 Australasia, 1012.
 Austria, 607.
 Bachapins of the south of Africa, 1112.
 Babylon, 36.
 Bavaria, 603.
 Benin, in Africa, 1080.
 Birman empire, 921.
 Boon, 1007.
 Borneo, 1020.
 Brazil, 1207.
 Britain, 1254; considered geographically, 1255; physically, 1256; socially, 1257.
 Britain after the Norman conquest, 904.
 Britain during the Anglo-Saxon dynasty, 196.
 Britain from the fifth to the seventeenth century, 195.
 British isles, modern history of, 741.
 British possessions of North America, 1166.
 Bushmans of Africa, 1113.
 Cambodia, 943.
 Canada, 1167.
 Canary islands, 1120.
 Cape Breton, 1171.
 Cape of Good Hope, 1087.
 Cape Verd islands, 1119.
 Carolines, 1032.
 Carthage, 38.
 Cayenne, 1215.
 Celebesian islands, 1023.
 Chili, 1214.
 Chinese empire, 951.
 Chinese Tartary, 1005.
 Cochin China, 944.
 Congo, 1082.
 Cuba, 1173.
 Denmark, 588.
 Eastern coast of Africa, 1114.
 Egypt, 8.
 Empire of Morocco, 1072.
 England in the early part of the sixteenth century, 221.
 European Turkey, 729.
 Foulahs of Africa, 1078.
 France from the fifth to the seventeenth century, 185.
 France, present state of, 373.
 Friendly Islands, 1039.
 Germany, present state of, 543.
 Germany from the fifth to the seventeenth century, 192.

Agriculture of Hanover, 581.
 Hindustan, 877.
 Holland, and the Netherlands, 417.
 Independent Tartary, 865.
 Ireland, 795.
 Island of Ceylon, 914.
 Isle of Bourbon, 1117.
 Italy during the middle ages, 180.
 Italy, present state of, 320.
 Jamaica, 1174.
 Japan, 946.
 Java, 927.
 Jews, 29.
 Ladrones, 1031.
 Laos, 942.
 Loango, 1081.
 Madagascar, 1115.
 Madeira, 1121.
 Mahometan states of the North of Africa, 1066.
 Malacca, 938.
 Manilla, or Philippine isles, 1022.
 Marquesas, 1033.
 Mauritius, 1116.
 Mexico, 1150.
 Modern Egypt, 1045.
 Moldavia, and Wallachia, 738.
 Moluccas or Spice Islands, 1024.
 New Britain, New Ireland, the Solomon Isles, New Caledonia, and the New Hebrides, 1027.
 New Brunswick, and Nova Scotia, 1170.
 New Holland, 1025.
 New Zealand, 1028.
 North America, present state of, 1127.
 Nubia, 1165.
 Otaheite, 1035.
 Papua, or New Guinea, 1026.
 Paraguay, 1206.
 Patagonia, 1319.
 Pelew isles, 1030.
 Persia, 850.
 Peru, 1203.
 Phenicia, 37.
 Poland, present state of, 628.
 Polynesia, 1012.
 Portugal, 728.
 Prussia, 563.
 Romans, 42.
 Russia, 945.
 St. Helena, 1118.
 Sandwich isles, 1034.
 Savoy, 347.
 Saxony, 596.
 Scotland from the eleventh to the thirteenth century, 208.
 Siam, 939.
 Sierra Leone, 1079.
 South America, 1901.
 South American islands, 1220.
 Spain, 688.
 Sumatra, 1013.
 Surinam, 1216.
 Sweden and Norway, their present state, 665.
 Switzerland, present state of, 326.
 Terra-firma, 1202.
 Thessaly and Albania, 736.
 Tibet, 1006.
 Tonquin, 945.
 Tripoli, 1067.
 Tunis, 1068.
 United States, 1130.
 Van Dieman's Land, 1029.
 Wales from the fifth to the seventeenth century, 197.
 Western coast of Africa, 1077.
 West India islands, 1172.

Agriculture, present state of, in Europe, 229.
 Agriculture, present state of, in ultra European countries, 845.
 Agriculturists, commercial, 6939; jobbing farmers, 6939; itinerant agriculturists, 6940; cottage farmers, 6941; poultry farmers, 6942; garden farmers, 6943; seed farmers, 6944; orchard farmers, 6945; hop farmers, 6946; milk or cow farmers, 6947; dairy farmers, 6948; graziers, 6949; stock farmers, 6950; store farmers, 6951; hay farmers, 6952; corn farmers, 6953; wood farmers, 6954; quarry farmers, 6955; mine farmers, 6956; salmon or river farmers, 6957; commercial or pro-

- seasonal farmers, 6968; gentlemen farmers, 6969; yeomen farmers, 6980; farming landlords, 6961.
- Agricultural counsellors, artists, or professors,** 6962; land measurer, 6962; agricultural salesman, 6963; appraiser, 6964; land-surveyor, 6965; timber-surveyor and valuer, 6966; land-valuer, 6967; land-agent, 6968; agricultural engineers, 6969; veterinary surgeon, 6970; agricultural draftsman, 6971; agricultural author, 6972; professor of agricultural science, 6973.
- Agriculturists, patrons,** 6974; amateur, 6975; connoisseurs, 6976; employers, 6977; amateur farmers, 6978; noblemen and proprietor farmers, 6979; noblemen and gentlemen improvers, 6980.
- Algoa,** —, his work on agriculture, page 1174. A.D. 1805.
- Ainslie, John,** his works on agriculture, page 1160. A.D. 1806.
- Aiton, William,** his works on agriculture, page 1169. A.D. 1805.
- Akee tree (figured),** 1186.
- Alamanni, —,** his work on agriculture, page 1177. A.D. 1764.
- Alamanni, Luigi,** his work on agriculture, page 1177. A.D. 1546.
- Albertazzi, Jacopo Antonio,** his work on agriculture, page 1178. A.D. 1811.
- Albin, Eleazer,** his works on birds and fishes, page 1164. A.D. 1737.
- Albrecht, J. F. E.,** his work on agriculture, page 1176. A.D. 1775.
- Albumen,** how obtained, and its uses, 1380.
- Alcarazas, or water pitcher,** of Spain, 725.
- Alderney cattle,** 6128.
- Alderney, agriculture of,** 7040.
- Alderney and Guernsey cattle,** 7040.
- Alderson, John,** his work on agriculture, page 1168. A.D. 1802.
- Alge, or sea weeds,** their utility, 1307.
- Algiers, agriculture of,** 1069.
- Alkalies, how and from what plants obtained,** 1474; utility of, 1475.
- Allets, Pons Augustin,** his work on agriculture, page 1171. A.D. 1760.
- Almond, its culture in France,** 412.
- Almond, culture of, at the Cape of Good Hope,** 1086.
- Aloe socotrina (figured),** its culture in Spain, 702.
- Aloes, their culture and application at the Cape of Good Hope,** 1037.
- Alternative medicines for live stock,** 5881.
- Amazonia, agriculture of,** 1218.
- Amethon, Hubert Pascal,** his work on agriculture, page 1173. A.D. 1779.
- America, agriculture of,** 1130.
- Amiot, L. F.,** his work on agriculture, page 1172. A.D. 1770.
- Amoretii, —,** his works on agriculture, page 1177. A.D. 1785.
- Amoreus, —,** his works on agriculture, page 1173. A.D. 1787.
- Amos, William,** his works on agriculture, page 1167. A.D. 1794.
- Amos's expanding horse-hoe and harrow,** 2547.
- Amphibious animals cultivated,** 6798; esculent frog, 6817; tree frog, 6818; tortoises, 6819.
- Analysis of soils,** 2083.
- Anatomy and physiology of the bull family,** 6927.
- Anchovy pear (figured),** 1186.
- Anderson, William,** his work on agriculture, page 1170. A.D. 1816.
- Anderson, James, L. L. D.,** his works on agriculture, page 1165. A.D. 1775.
- Androgynous animals,** 1948.
- Andouin, Maurice,** his work on agriculture, page 1175. A.D. 1820.
- Angora goat,** 6583.
- Angular sided hinged harrows,** 2570.
- Angus, or Forfarshire, agricultural survey of,** 7064.
- Animal chemistry, or the substances which enter into their composition,** 1879; carbon, 1881; hydrogen, 1882; oxygen, 1883; azotic gas, 1884; phosphorus, 1885; sulphur, 1886; fluoric acid, 1887; muriatic acid, 1888; iodine, 1889; potash, 1890; soda, 1891; ammonia, 1892; lime, 1893; magnesia, 1894; silica, 1895; iron, 1896; manganese, 1897; compounds of organization, 1899; gelatine, 1900; albumen, 1902; flsia, 1904; extractive, 1905; mucus, 1907; urica, 1908; sugar, 1909; oils, 1910; spermaceti, 1911; ambergrease, 1912; fat, 1913; tallow, 1914; acids, 1916; fluids, 1919; solids, 1920.
- Animal food, sparing use of, by the Chinese,** 983.
- Animal kingdom, study of, with reference to agriculture,** 1799; systematic zoology, 1801; animal anatomy, 1806; animal chemistry, 1879; animal physiology, 1927; pathology, 1954; geographical distribution of animals, 1962; uses, 1985; culture, 1993.
- Animals, different modes of killing for use,** 2046; pithing, 2047; slaughtering, 2048; Jewish modes, 2050; killing accidentally, 2051; preparation before killing, 2052.
- Animals, feeding of, for extraordinary purposes,** 2038; fattening fowls for the London markets, 2040; enlarging the liver of fowls, 2041; Roman epicures, 2042; early lamb, 2043; milk and eggs, 2044; hard labor, and long journeys, 2045.
- Animals noxious to agriculture,** 6846; mammalia 6847; birds, 6860; insects, 6862; worms, 6921.
- Animals of the bird kind used in agriculture,** 6672.
- Animals, principles of improving the breeds of,** 1994; form, 1996; lungs, 1997; chest, 1998; pelvis, 1999; head, 2000; neck, 2001; muscles, 2002; bones, 2003; nourishment, 2005; crossing, 2006; breeding in-and-in, 2014; Bakewell and Culler, 2019.
- Animals, principles of rearing, managing, and feeding,** 2020; food, 2021; air and exercise, 2022, 2030; taming, 2023; feeding, 2024; mastication and cooking, 2027; salt, 2028; heat, 2029; water, 2031; tranquillity, 2033; cleanliness, 2034; comfort, 2035; health, 2036; farriery, 2037.
- Animals reared by the Romans,** 148.
- Animals tender to acclimate,** 6634.
- Animals, the technical description of their parts, nomenclature, and classification,** 1801; descriptions, 1802; names, 1804; classification, 1805.
- Animals, their application or uses,** 1985; laborers, 1986; food, 1987; clothing, 1990; medicine, 1991; arts, 1992.
- Animals, their circulating system,** 1954.
- Animals, their digestive system,** 1923; thirst, 1929.
- Animals, their duration, diseases, and casualties,** 1954; endemical and epidemical diseases, 1956; epizooties, 1957; fasting, 1959; mutual destruction, 1959.
- Animals, their external anatomy,** 1807; cuticle, 1808; mucus, 1809; corium, 1810; muscular web, 1811; cellular web, 1812; hairs, 1814; wool, 1815; feathers, 1821; horns, 1822; beaks, 1825; hoofs, 1826; claws, 1827; nails, 1828; spurs, 1829; scales, 1832; shells, 1833; crusts, 1835; secretions of the skin, 1837; sweat, 1840; carbon, 1841.
- Animals, their geographical distribution,** 1962; heat, 1963; seasons, 1964, 1977; casting the hair, 1965; moulting, 1966; distribution of color in the animal kingdom, 1967; migration, 1969; birds of passage, 1971; torpidity, or hibernation, 1974; food, 1976; situation, 1979; rapacity, 1980; number of animals described, 1983; British fauna, 1984.
- Animals, their muscular structure,** 1855; grasping, 1858; suction, 1859; cementation, 1860; muscular motions, 1861; standing, 1862; walking, 1863; leaping, 1868; flying, 1870; swimming, 1871; positions of sleep, 1874.
- Animals, their nervous structure,** 1875; brain, 1876; functions of the brain and nervous system, 1878.
- Animals, their osseous structure,** 1844; periosteum, 1845; bones, 1847; cartilage, 1850; joints, 1853; ligaments, 1854.
- Animals, their reproductive system,** 1936; business of the female, 1937; of the male, 1937; viviparous animals, 1938; eggs, 1939; insects, 1941; birds, 1947; androgynous animals, 1948; gemmiparous animals, 1949; hybridous animals, 1950.
- Anotto bisca orellana (figured),** 1205.
- Anstruther, Sir John, Bart.,** his work on agriculture, page 1167. A.D. 1796.
- Ant, wasp, and bee insects,** 6904.
- Ant-hills, modes of removing,** 5203.
- Ants, mode of poisoning in the West Indies,** 1183.
- Antelope family,** 6624; common, 6625; chamols, antelope, or goat, 6626; Scythian, 6627; nilgau, 6628.
- Antill, Hon. Edward, Esq.,** his works on agriculture, page 1179. A.D. 1789.
- Antisocial habits of plants, its influence on their distribution,** 1736.
- Anton, K. Glo.,** his work on agriculture, page 1166. A.D. 1793.
- Antrim, agricultural survey of,** 7107.
- Aphis or plant louse,** 6884.
- Apiary,** 2687.
- Apparatus for the preparation of food for cattle,** 2650.

Apples suitable for orchards, 3777, 3781.
 April, weather and agricultural operations to be performed in, page
 Apterous insects, 6911.
 Aquino, Charles d', his work on agriculture, page 1177. A. D. 1736.
 Arabia, agriculture of, 870; surface, 871; products, 872; cultivated plants and trees, 873; live stock, 874; horse, 875; implements and operations, 876.
 Arabian horses, history of, 875.
 Arabians, royal stud of, in France, 393.
 Arable farming of Wiltshire, 7031.
 Archer, Lieutenant Joseph, his work on agriculture, page 1168. A. D. 1801.
 Arduasio, Luigi, his works on agriculture, page 1178. A. D. 1809.
 Areca palm, culture of, in Sumatra, 1017.
 Argyleshire cattle, 6119.
 Argyleshire plough, 3499.
 Argyleshire, agricultural survey of, 7072.
 Armagh, agricultural survey of, 7105.
 Arrow-root, *Maranta arundinacea*, culture of, in the West Indies, 1194.
 Artificial climates, formation of, for plants, 1735.
 Artificial springs, to form, 4156.
 Ashes, spreading of, 2979.
 Ashes of vegetables, how obtained, used, and the proportions afforded by different plants, 1472; analysis of ashes, 1473.
 Ashes of soils, theory of their operation, 2137; of wood, 2179, 2238; of clover and rye-grass, 2232.
 Asia, agriculture of, 946.
 Asiatic islands, agriculture of, 1012.
 Asiatic Turkey, agriculture of, 847; climate, 848; mountains, 849.
 Ass, 6087; different breeds of, 6090; training, 6093; anatomy and physiology, 6095; diseases, 6096; shoeing, 6097.
 Ass of Persia, 859.
 Ass among the Romans, 105.
 Asses of Egypt, 1061.
 Asafoetida, from what plant obtained, 1456.
Astragalus boticus (figured), cultivated in Austria as a coffee plant, 617.
 Astringent medicines for live stock, 1881.
 Atmosphere, its influence on vegetation, 2265.
 Auger for under-draining, 2431.
 August, weather and agricultural operations to be performed in, page
 Australasia, agriculture of, 1012.
 Austria, agriculture of, 917; state of landed property, 608; management of extensive domains, 609; crown lands, 610; implements, 612; produce, 613; vine, 614; tokay wine, 614, 615; silkworm, 617; bees, 618; live stock, 619; horned cattle, 620; horses, 621; swine, 622; poultry, 623; tortoise, snail, &c., 624; forests, 625.
 Ava, or intoxicating pepper, its cultivation in Borneo, 1021.
 Avalanches, 333.
 Aviary, 6795.
 Aeronix, Foulon, his work on agriculture, page 1175. A. D. 1818.
 Awn separating machine, 2649.
 Axe, saw, wedge, hammer, &c., used in agriculture, 2614.
 Ayrbire, agricultural survey of, 7055.

B.

Babylon, its agriculture, 136.
 Bachapins, their agriculture, 1112.
 Backing a horse, 5968.
 Back-raking, an operation so called by farriers. It consists in anointing the hand very well with any sort of oil or lard, and introducing it gently into the horse's fundament, fetching out by little and little the hardened excrements, when he has got a chole, and there is reason to suspect that it proceeds from hardened faeces in the rectum. In this operation the farrier should introduce his hand and arm as far up as he well can. The properest person to do this is one who has a hand and arm of the smallest size, 5874.
 Bacon and pork, to cure, 6576.
 Badger, to destroy, 6853.
 Bagging; see Reaping.
 Bagot, his works on agriculture, page 1164. A. D. 1806.
 Bailey, John, Esq., his works on agriculture, page 1165. A. D. 1797.

Baker, John Wynn, his work on agriculture, page 1165. A. D. 1771.
 Bakewell, some account of his farm and farming, 7013.
 Bakewell, his practice in breeding animals.
 Bakewell's farm Dishley described, 7013.
 Bakewell, Robert, Esq., his work on agriculture, page 1169. A. D. 1808.
 Bakewell's improvements on live stock, history of, 765.
 Bald, Robert, his work on agriculture, page 1170. A. D. 1812.
 Ball, in farriery, a well known form of medicine, for horses or other animals, which may be passed at once into the stomach. It is a snode by which those substances which are in a solid state, may be thrown into the stomach, and which could not be properly effected in any other way. They should be made of a long oval shape, and about the size of a small egg, being conveyed over the root of the tongue by the hand, 3863.
 Balls and drinks, mode of giving, to horses, 5863.
 Balls, cordial, cough, &c., used in veterinary practice, 5889.
 Balsams what, from what plants obtained, and how used, 1457; Benzoin, 1448; Storax, 1459; Strux, 1460; Balsam of Tolu, 1461; Balsam of Peru, 1462.
 Bamboo, its uses in Hindustan, 895.
 Banana, *Musa paradisiaca* (figured), 1165.
 Banister, John, his works on agriculture, page 1168. A. D. 1799.
 Banks of rivers, to guard, 4038.
 Banks, Sir Joseph, Bart. K. B., his works on agriculture, page 1168. A. D. 1805.
 Barbaro, Marco, his work on agriculture, page 1177. A. D. 1785.
 Barbé, Marbois, his works on agriculture, page 1174. A. D. 1798.
 Barber, William, his works on farm buildings, page 1169. A. D. 1805.
 Barille, Giuseppe, his works on agriculture, page 1177. A. D. 1807.
 Barham, Henry, his works on the silkworm, page 1163. A. D. 1718.
 Bark for tanners, its valuation, 3767.
 Barking trees, 3748; instruments, 3748; drying and preparing the bark, 3749.
 Barley bread of Kircndrightshire, 7054.
 Barley, culture of, 4659; species and varieties, 4660; soil, 4671; sowing, 4670; harvesting, 4682; produce, 4685; uses, 4686.
 Barns for corn, 2989; for hay, 2998.
 Barometer, its variations in different parts of the world, 2979.
 Barrow, William, F. R. S. E., his essays on the plough, page 1165. A. D. 1774.
 Barrows, 2449; wheel, 2449; sack, 2450; hand, 2451.
 Bar-shoe for horses, 5932.
 Barthex, de Marmories, his work on agriculture, page 1172. A. D. 1763.
 Bartley, Nehemiah, Esq., his work on agriculture, page 1168. A. D. 1802.
 Barton, Benjamin Smith, M.D., his work on agriculture, page 1179. A. D. 1812.
 Bartram, Moses, his work on agriculture, page 1179. A. D. 1789.
 Bartrom, John, M.D., his work on agriculture, page 1179. A. D. 1744.
 Baskets, 2436; seed basket, 2437.
 Bassi, Agostino, his works on agriculture, page 1178. A. D. 1811.
 Batchelor, Thomas, his work on agriculture, page 1169. A. D. 1804.
 Bavaria, agriculture of, 603.
 Beal, Dr. John, his work on agriculture, page 1163. A. D. 1679.
 Bean, its culture, 4764; varieties, 4765; soil, 4768; sowing, 4774; harvesting, 4784; produce, 4786; use, 4790.
 Bean dibble, 2469, 2571.
 Bean drill, 2471, 2561.
 Beaton's cultivator, 2538.
 Beaton, Major General Alexander, his work on agriculture, page 1170. A. D. 1820.
 Beaumé, Antony, his work on agriculture, page 1172. A. D. 1770.
 Beaumont, John, his essay on cleaving of rocks, page 1163. A. D. 1684.
 Bed in irrigation, 4067.
 Beddoes, Thomas, M.D., his works on agriculture, page 1169. A. D. 1808.
 Bedfordshire, agricultural survey of, 6909.

- Bees, common, 6827; apiary, 6828; varieties of bees, 6829; hives, feeding, 6833; protecting, 6834; swarming, 6835; taking the honey, 6837; partial deprivation, 6837; total deprivation, 6838, suffocation, produce and profit, 6840.
- Bee-hives, 6830; material, 6830; size, 6831; Polish hive, 6832.
- Bees, culture of, in North Wales, 7044.
- Bees, culture of, in Poland, 637.
- Bee, wasp, and ant insects, 6904.
- Beetles, 6872; weevil, 6874; black cockroach.
- Beetwhite or mangold, culture of, 4962.
- Beggars of Flanders, 535.
- Belair, A. P. Julienne de, his work on agriculture, page 1174. A. D. 1794.
- Belgrou, William, his work on agriculture, page 1179. A. D. 1755.
- Bell, Benjamin, F.R.S.E., his work on agriculture, page 1168. A. D. 1802.
- Belly, diseases of, 5791.
- Bend in irrigation, 484.
- Bence, Sir Richard, his work on agriculture, page 1102. A. D. 1535.
- Bencetti, Santo, his work on agriculture, page 1178. A. D. 1810.
- Benin, agriculture of, 1080.
- Benson, William, A.M., his work on agriculture, page 1164. A. D. 1724.
- Berkshire waggon, 2622.
- Berkshire, agricultural survey of, 7006.
- Berleson, S., his work on silkworms, page 1166. A. D. 1789.
- Berthelot, his work on agriculture, page 1173. A. D. 1792.
- Bertholus, Dionysius, his work on agriculture, page 1177. A. D. 1496.
- Bertrand, his work on agriculture, page 1174. A. D. 1794.
- Bertrand, Jean, his work on agriculture, page 1172. A. D. 1764.
- Bertrand, Elie, his works on agriculture, page 1172. A. D. 1764.
- Berwickshire, agricultural survey of, 7043.
- Besoms, 2395.
- Betel leaf, piper betle (figured), its culture and preparation in Sumatra, 1016.
- Beverton wheel-plough, 2512.
- Bexon, Gabriel Leopold Charles Ame, his works on agriculture, page 1172. A. D. 1773.
- Bibliography of agriculture in foreign countries, 7111.
- Bibliography of French agriculture, 7112.
- Bibliography of German and Italian agriculture, 7113, 7114.
- Bibliography of Spanish and Portuguese agriculture, 7115.
- Bibliography of Flemish and Dutch agriculture, 7117.
- Bibliography of Swedish and Danish agriculture, 7118.
- Bibliography of Polish and Russian agriculture, 7119.
- Bibliography of British agriculture, 7110.
- Bibliography of American agriculture, 7120.
- Bulet, M., his work on agriculture, page 1177. A. D. 1778.
- Bullingley, John, Esq., his work on agriculture, page 1168. A. D. 1798.
- Binot or ribbing plough, 2501.
- Binot, an agricultural implement of Flanders, 500.
- Birch-wine, how obtained and manufactured in Derbyshire, 7014.
- Birds, singing, to roar, 6793; curious or remarkable birds, 6796.
- Birds injurious to agriculture, 6860; kite, 6860; crow, 6861; granivorous birds, 6861.
- Birds employed in agriculture, 6672.
- Birds of luxury cultivated by farmers, 6763.
- Birds of Amazonia, 1218.
- Birdsfoot trefoil, 5083.
- Birkbeck, Moris, Esq., his works on agriculture, page 1170. A. D. 1815.
- Birman empire, agriculture of, 921.
- Biroli, Giovanni, his works on agriculture, page 1177. A. D. 1807.
- Bitter, principle, from what plants obtained, and how used, 1395.
- Black soil, its influence in absorbing heat, 2108.
- Black, James, his work on agriculture, page 1163. A. D. 1778.
- Blackwater in cattle, 6263.
- Bladder, inflammation of, in cattle, 6264.
- Bladder, inflammation of, 5814.
- Blaille, Francis, his works on agriculture, page 1163. A. D. 1819.
- Blaille's inverted horse-hoe, 2544.
- Blanks in plantations to fill up, 3683.
- Blast or hove in sheep, 6511.
- Blaves, his work on agriculture, page 1171. A. D. 1755.
- Bleeding horses, 5878.
- Blight in plants, 1653; from cold and frosty winds, 1655; from vapor, 1656; from fungi, 1657.
- Blistering, 5870; sweating or liquid blisters, 5872.
- Blisters used in veterinary practice, 5890.
- Blüh, Walter, his works on agriculture, page 1163. A. D. 1649.
- Block plough drill, 2562.
- Blood or bog spavin, 5841.
- Blood, theory of its operations as a manure, 2188.
- Blood rot in sheep, 6513.
- Blood ray; see Dysentery, 6867.
- Bloody urine in horses, 5815.
- Blown or hove in cattle, 6253.
- Boabab tree, *Adansonia digitata*, 1083.
- Bog of Allan in Ireland, 807.
- Bog meadows, their management, 5213.
- Bog spavin, 5841.
- Bogs of Ireland, 807.
- Bogs, to improve, 4183.
- Bombyx mori (figured), silk moth, its culture in France, 401.
- Bone spavins and splints, 5838.
- Bones, their nature and uses, 1845.
- Bones, grinding of, for manure in Derbyshire, 7014.
- Bonnemain, his work on agriculture, page 1174. A. D. 1816.
- Bonnet, James, his plan for beehives, &c., page 1167. A. D. 1796.
- Book farmers, or aerialists, 7045.
- Books of accounts for farmers and bailiffs, 4500.
- Booker's lime-kiln, 3589.
- Bootan, agriculture of, 1007.
- Borch, H. A. Grafen, Count de, his work on agriculture, page 1176. A. D. 1779.
- Bordley, J. B., his work on agriculture, page 1179. A. D. 1801.
- Borer of soils, 2428; of peat, 2430; draining auger 2431.
- Boring for water, 4148; at Tottenham, at Ravenscroft park, 4148.
- Borneo, agriculture of, 1020.
- Bornet, M.A., his work on agriculture, page 1175. A. D. 1817.
- Borro (del) Alessandro, his work on agriculture, page 1177. A. D. 1718.
- Bosc, his works on agriculture, page 1175. A. D. 1823.
- Bosc, K. Ad. H. von, his work on agriculture, page 1176. A. D. 1792.
- Boswell, George, his work on agriculture, page 1164. A. D. 1780.
- Boucher, d'Argis, Antoine Gaspard, his work on agriculture, page 1171. A. D. 1749.
- Bouthier, his work on agriculture, page 1173. A. D. 1780.
- Bowels, inflammation of, 5797.
- Bogs, John, his work on agriculture, page 1767. A. D. 1795.
- Brabant scythe in use in Flanders, 503.
- Bradley, Richard, F.R.S., &c., his works on agriculture, page 1163. A. D. 1721.
- Brake or levelling harrow, 2573.
- Braxy or dysentery in cattle, 6867.
- Braxy in sheep, 6515.
- Brazil, agriculture of, 1807; vegetable productions, 1208; lines, 1208; ipecacuanha, 1209; pot tree, 1210; pine apples, 1211; mandioca, 1212; live stock, 1213; musk ox, 1214.
- Bread fruit of Otaheite (figured), 1037.
- Breaking and training cattle among the Romans, 98.
- Breaking machine for roots, 2474.
- Breaking stones, 2885.
- Breast hoe, or breast plough, 2391.
- Breeds of animals, how to improve; see Animals 1904.
- Breeding farms, 5274.
- Breeding of horned cattle, 6144.
- Breeding stock, choice of, 4470; Cline's opinions, 4476.
- Breeding among the Romans, 94.
- Breeding in-and-in, physiologically considered, 1014.
- Brewery and distillery plants, substitutes for, 5456.

Bridge, portable, for live stock, 6996.
 Bridle sores, 5778.
 Britain, agriculture of, after the Norman conquest, 204.
 Britain, agriculture of, from the fifth to the seventeenth century, 195.
 Britain, agriculture of, during the Anglo-Saxon dynasty, 195.
 British isles, modern agricultural history of, 741; political history, 742; professional history, 755; literary history, 781.
 British fauna, or catalogue of British animals, 1984.
 British North America, agriculture of, 1166; Canada, 1167.
 British flora, distribution of, 1759; perfect plants, 1761; imperfect plants, 1762; introduction of exotics, 1770; purchasable plants, 1772.
 Broken wind, 5789.
 Broken knees in horses, 5837.
 Broom, field culture of, 5080.
Broussonet, Pierre-Marie-Auguste, his works on agriculture, page 1173. A. D. 1787.
Brown, Robert, his works on agriculture, page 1168. A. D. 1799.
Brugnone, Gio, his works on agriculture, page 1177. A. D. 1781.
 Bruising machine, 2467.
Buchoz, Pierre Joseph, his works on agriculture, page 1171. A. D. 1780.
 Buckinghamshire, agricultural survey of, 6998.
 Buckwheat, 4736, 5499.
 Buckwheat, culture of, in Flanders, 456.
 Budding plants, 1621.
 Buffalo, 6279.
 Buffalo of Hindustan, 898.
 Buffalo of Egypt, 1059.
Bulard, his work on agriculture, page 1173. A. D. 1778.
 Bull or ox family, 6105; see Ox.
 Bull family, anatomy and physiology of, 6227.
Bunias orientalis (figured), culture of, 5084.
 Buns, the stalks of hemp from which the bark or woody matter has been taken off, 5334.
Buonaparte, agricultural societies, &c., established by him, 376.
 Burnet, culture of, 5064.
 Burning clay, operation of, 2981; theory of burnt clay as a manure, 2982; common method by kilns, 2985; improved method, 2987; burning with quicklime, 2989.
Burroughs, Edward, Esq., his work on agriculture, page 1170. A. D. 1820.
 Bush harrow, 2576.
 Bushmans, their agriculture, 1113; spade, 1113.
 Bustard, *Otis tarda*, 6756; little bustard, *O. tetrax*, 6756.
Butler, Charles, his work on bees, page 1162. A. D. 1809.
 Butter, making and curing of, 6320.
 Butter of Epping, 6187.
 Butterflies, 6889; chrysalis state, 6891; perfect insect, 6892; British butterflies the most remarkable, 6893.
 Buttermilk, 6379.

C.

Cabbage tribe, field culture of, 4969.
 Cabbage, its culture and application in China, 980.
 Cabbage tree of the Pelaw isles (figured), 1030.
 Cabbage tree beetle of Surinam (figured), 1217.
Cactus opuntia (figured), Indian fig, 703.
Cadet de Faux, Antoine Alexia, his works on agriculture, page 1173. A. D. 1782.
 Calithness, agricultural survey of, 7069.
 Calendarium flore, principles of forming, 1629; uses of, 1630.
 Calf pens, 2678.
 Calkins, or turn-ups, in frost-shoeing of horses, 5937.
 Caloric, how distributed in the animal kingdom, 1967.
Callhorpe, Charles, his work relative to the lord of a manor and his tenant, page 1162. A. D. 1635.
Calvel, Etienne, his work on agriculture, page 1174. A. D. 1809.
 Calves, fattening of, 6187.
 Calves, diseases of, 6278.
 Calving, 6276.
 Cambodia, agriculture of, 943.
 Cambridgeshire, agricultural survey of, 7001.
 Camel of Persia, 859.

Camel of Hindustan, 904.
 Camel family, 6630; dromedary, (Arabian, Barbian, 6630; lama, 6631.
Camellia sasanqua, one of the tea plants of China, 965.
Camellia bohea, black tea of China, 962.
Camellia viridis, green tea of China, 962.
Camellia oleifera, oil-bearing tea plants, 967.
 Camelopard, 6632.
 Camphire tree, and its application in China, 971.
 Camphor, from what plant obtained, how, and its uses, 1463.
 Campo morto, farm of, near Rome, 305.
 Canada, agriculture of, 1167; soil, 1168; products, 1169.
 Canals, their formation, 3526; utility, 3527; line or route, 3533; canal companies, 3539; execution of the works, 3544.
 Canals and embankments of modern Egypt, 1048.
 Canary grass, 5485.
 Canary islands, agriculture of, 1120.
Canciana, his work on agriculture, page 1177. A. D. 1776.
 Canker in the feet of horses, 5858.
 Canine madness, 6690; raging madness, 6661; dumb madness, 6662; preventive treatment, 6663.
 Canis, or dog family, 6635; see Dog.
Cantani, Carlo Antonio, his work on agriculture, page 1177. A. D. 1778.
 Caoutchouc, or India rubber, from what plants obtained, and how, 1464.
 Cape of Good Hope, agriculture of, 1087; climate, 1088; surface, 1089; soil, 1090; landed property, 1091; farms, 1092; products, 1093; vine, 1094; Constantia wine, 1095; almond, 1096; aloe, 1097; tobacco, 1098; live stock, 1099; implements and operations, 1106; agriculture of the native tribes, 1108; of the unimproved Hottentots, 1102; Hottentot huts and cattle, 1109, 1110; *bachapina*, 1118; Bushmans, 1113.
 Cape Verd islands, agriculture of, 1119.
 Cape Breton, agriculture of, 1171.
Capparis spinosa (figured), the caper plant, its culture in France, 384, 413.
 Caprification of the fig in Turkey, 792.
 Capulet of the hock in horses, 5843.
 Carbon, as an article of vegetable food, 1510.
 Carbonic acid gas in the atmosphere, 2271.
 Carlow, agricultural survey of, 7063.
 Carolines, agriculture of, 1052.
Caronelli, Pietro, his works on agriculture, page 1177. A. D. 1791.
 Carp, 6801.
Carpenter, J., his work on agriculture, page 1168. A. D. 1803.
Carradori, Groachino, his work on agriculture, page 1177. A. D. 1803.
 Carraway, 5452.
Carrera, Antonio, his work on agriculture, page 1177. A. D. 1780.
 Carriage in irrigation, 4077.
 Carrot, its culture, 4926; varieties, 4927; soil, 4928; sowing, 4935; taking the crop, 4942; product, 4944; use, 4945.
 Carrot, culture of, in Flanders, 467.
 Carse lands of Stirlingshire, 7058.
 Cart of Hindustan, 907.
 Cart of Paris, 398.
 Cart of Russia, 662.
 Cart of Rome, 302; of Flanders, 507; of France, 398.
 Cart, Scotch (figured), 770.
 Cart of modern Greece, 736.
 Cart-shed, 2707.
 Carts, 2608; for one or two horses, 2609; Scotch one-horse cart, 2611; Scotch two-horse cart, 2612; improved two-horse carts, 2613; corn cart, 2614; dray cart, 2615; quarry cart, 2617; three-wheeled cart, 2618.
 Carts of Yorkshire, 7021; figs. 794 and 795.
Carter, Landon, his work on agriculture, page 1179. A. D. 1789.
 Carthage, its agriculture, 38.
Carthamus tinctorius, cultivated in Egypt, 1057.
Carver, Jonathan, Esq., his work on agriculture, page 1179. A. D. 1779.
 Cassava or manioc, *Jatropha manihot*, 1116.
Castilet, Constans, his work on agriculture, page 1177. A. D. 1778.
Castelli, Benedict, his work on agriculture, page 1177. A. D. 1628.
 Casting, the operation of throwing a horse down: it is done as follows: having brought him upon

- some even ground that is smooth and soft, or into the barn upon soft straw, take a long rope, double it, and cast a knot a yard from the bow; put the bow about his neck, and the double rope betwixt his fore legs; about his hinder pasterns, and under his fetlocks: when you have done this, slip the ends of the rope underneath the bow of his neck, and draw them quick, and they will overthrow him; then make the ends fast; and hold down his head, 5861.
- Castor wheel horse-hoe, 2548.
- Castration, docking, nicking, and cropping, 5877.
- Casualties of animals, 1954.
- Cat, *Felis catus*, 6688.
- Catarrh or influenza in cattle, 6248.
- Catarrhal fever in horses, 5765.
- Catch drain in irrigation, 4086.
- Catch-work meadows, 4095.
- Caterpillars, different sorts, 6866; gooseberry, 6920.
- Cato, M. Porcius, his works on agriculture, 45.
- Cattaneo, Giacomo, his work on agriculture, page 1177. A. D. 1767.
- Cattle of Aberdeenshire, 7066.
- Cattle surgery, 6272.
- Cattle hammels and sheds, 2677.
- Cattle obstetrics, 6275.
- Cattle of Piedmont, careful mode of feeding, 269.
- Cattle of Devonshire, 7038.
- Cavan, agricultural survey of, 7099.
- Cavendish, William, Marquess and Duke of New-castle, his work on horses, page 1163. A. D. 1667.
- Cavia cobaya, or Guinea pig, 6614.
- Cavy; see Cavia, 6614.
- Cayenne, agriculture of, 1215.
- Celebesian islands, agriculture of, 1023.
- Cels, Jacques Martin, his works on agriculture, page 1174. A. D. 1795.
- Ceratonla silqua, the carob bean, or St. John's bread, or locust tree of the bible (figured), 1078.
- Cereal grasses, culture of, 4596.
- Cervus, the deer family, 6616; C. elephas, 6617; C. capreolus, 6618; C. dama, 6619; C. alces, 6622; C. tarandus, 6623.
- Ceylon, agriculture of, 914; soil, 915; cultivation, 916; implements, 917; farm yard, 918; embankment, 919.
- Chabert, Philippe, his works on agriculture, page 1173. A. D. 1785.
- Chadcutter, 2465.
- Chambray, Louis, marquis de, his work on agriculture, page 1172. A. D. 1765.
- Chamerops humilis, the fan palm, its culture in Spain, 704.
- Chamois goat, *Antelope rupicapra*, 6626.
- Chamomile, 5523.
- Chamomile, culture of, in Derbyshire, 7014.
- Chansallon, his work on agriculture, page 1172. A. D. 1769.
- Chaptal, Comte, his work on agriculture, page 1175. A. D. 1823.
- Charcoal, what, how manufactured; in what proportions afforded by different plants, 1467; properties of charcoal, 1468.
- Chatelain, Le Chevalier, his work on agriculture, page 1175. A. D. 1816.
- Cheese, Gruyère, how made in Switzerland, 342.
- Cheese-making, process of, 6335.
- Cheese-making in Cheshire, 7028.
- Cheese mite, 6913.
- Cheese presses, 6310.
- Cheese, Parmesan, how made in Lombardy, 270.
- Chemical analysis of soils, 2083.
- Chemistry of animals, 1879.
- Chermes insect, or plant louse, 6885.
- Cherries suitable for orchards, 3788.
- Cheshire, agricultural survey of, 7028.
- Chicory, 5503.
- Chicory, culture of, 5774; in Italy, 273.
- Chili, agriculture of, 1904; plants, 1905.
- Chillingham castle, wild breed of cattle at, 6130.
- Chinese Tartary, agriculture in, 1005.
- Chinese corn mill, 913.
- Chinese empire, agriculture of, 951; Dr. Abel's opinion of Chinese agriculture, 952; Dr. Barrow's, 953; Livingstone's, 954; climate, 955; surface, 956; soil, 957; landed property, 958; agricultural products, 959; tea districts, 960; oil plants; 967; tallow tree, 968; wax tree, 969; camphire tree, 971; oak, 972; maiden-hair tree, 973; cordage plant, 974; cotton, 975; silk worm, 975; ground-nut, 977; water chestnut, 978; millet, 979; cabbage, 980; live stock, 982; wild animals, 984; birds, 985; fisheries, 986; implements, 987; operations, 988; tillage, 989; manures, 991; retiring houses, 999; terrace cultivation, 1001; forests, 1003; row culture general, 1002; national agricultural fete, 1004.
- Chocolate tree, *Theobroma* (figured), 1206.
- Christ, J. L., his work on agriculture, page 1176. A. D. 1780.
- Chronic cough, 5788.
- Chronic founder in the feet, 5850.
- Churning, process of, 6322.
- Churns, different kinds of, 6311.
- Circulating system of animals, 1934.
- Ciccer arietinum (figured), the chick pea, 406.
- Cichorium intybus (figured), chicory, cultivated as an herbage plant in Italy, 273.
- Cider, its manufacture, 3809; gathering the fruit, 3810; mixing, 3811; grinding, 3812; pressing, 3815; fermenting, 3816; barrelling, 3817; stumming, 3820; bottling, 3821; machinery and utensils, 3824; mills, 3826; press, 3831; cloths, 3832; vats, 3833; casks, 3834.
- Cider mills, different kinds of, 3826.
- Cinnamon, *Laurus canella*, 1208.
- Citron, as grown in Persia, 856.
- Cistus, *ladaniferus* (figured), Gum cistus, its use in Spain, 710.
- Clackmannanshire, agricultural survey of, 7060.
- Clap or strain in the back sinews of horses, 5833.
- Clare, agricultural survey of, 7092.
- Claridge, John, his work on agriculture, page 1166. A. D. 1793.
- Claridge, John, his work on the changes of the weather, page 1164. A. D. 1744.
- Clark, John, F.S.A., his works on agriculture, page 1167. A. D. 1794.
- Clarke, Charles, his treatise on gypsum, page 1166. A. D. 1792.
- Clarke, Cuthbert, his work on agriculture, page 1167. A. D. 1777.
- Clarke's draining plough, 2519.
- Classification of soils, 2067; by Sir H. Davy, 2068; by Thaer, Thoun, and Fellenberg, 2070.
- Claveau, or sheep pox, 6505.
- Clay, to dry and burn, 2981.
- Cleghorn, James, his work on agriculture, page 1171. A. D. 1822.
- Cleaning roots, 2901.
- Cleaning cattle, 2994.
- Climate in respect to the culture of vegetables, 1790.
- Climate of Britain, study of, 2369.
- Cline, Henry, Esq., his theory of improving the breed of animals, 2014.
- Clipping, 2919.
- Cliquet, Biervache, his work on agriculture, page 1173. A. D. 1789.
- Cloathing arts, plants grown for, 5291.
- Clotted cream, 6375.
- Clouds, their effects relating to the atmosphere and vegetation, 2242.
- Clouds, their nomenclature, by Luke Howard, 2289.
- Clover family, culture of, 4985; species and varieties, 4986; soil, 4992; sowing, 4995; taking the crop, 5003; making into hay, 5006; produce, 5018; seed, 5021.
- Clover and turnips, their introduction, as agricultural plants, into England, 235.
- Clydesdale, agricultural survey of, 7056.
- Clymer's plough, 2505.
- Clystering in veterinary surgery, 5874.
- Clysters used in veterinary medicine, 5895.
- Coal mines, 3580.
- Coal strata of Durham, 7023; fig. 796.
- Cob, a kind of wicker basket, made so as to be carried on the arm. Hence a seed-cob, or seed-lip, is a basket for sowing from, 2437.
- Cochin China, agriculture of, 944.
- Cochineal, culture of, in Mexico, 1164.
- Cochineal, or coccus insect, 6887.
- Cochrane, Archibald, Earl of Dundonald, his works on agriculture, &c., page 1167. A. D. 1795.
- Cockburn, of Ormiston, a great improver, 772.
- Cock-roach, 6878; black-beetle, 6879.
- Cocoa tree, *Cocos nucifera* (figured), its culture and application in Hindustan, 838.
- Cocoa root, or eddoes, *Arum* and *Caladium*, various species, culture of, in the West Indies, 1192.
- Cock and hen, 6883; game cock and hen, 6894; Dorking variety, 6885; Poland cock and hen, 6886; every-day, 6887; bantam, 6888; Chittagong or Malay, 6889; shacklebag, or Duke of Leeds, 6890; Spanish, 6891; breeding of gallinaceous poultry, 6892; general management, 6893; moulting, 6890; hatching, 6702; products, 6706; fat-

- tening, 6710; different sorts of food, 6714. Cramming, different modes of, 6718; pinioning, 6723.
 Coffee, culture of, in Java, 933.
 Coffee tree (figured), culture of, in the West Indies, 1900.
 Coffee plants of Austria, 617.
 Coffin joint, strains of, in horses, 5835.
Cointereaux, Francois, his works on agriculture, page 1173. A. D. 1792.
 Cold, theory of excluding, by slight coverings, 2254.
 Coleopterous insects injurious to agriculture, 6871.
Colerus, J., his works on agriculture, page 1175. A. D. 1591.
 Colic in horned cattle, 6265.
 Colic, gripes, fretor gullion, 5805.
 Colic red, or interitis, 5797.
 Coloring matter of plants, how obtained and used, 1388; blues, 1389; reds, 1390; yellows, 1391; browns, 1392.
Cotte, L., his work on agriculture, page 1173. A. D. 1750.
 Colts, deceptions practised with by horse dealers, 5938.
 Columba, the pigeon, 6764.
Columela, L. J. Moderatus, his works on agriculture, 49.
Comber, Thomas, L.L.D., his works on agriculture, page 1165. A. D. 1770.
 Combles, a mode of warping practised in Italy, 267.
 Common drill barrow, 2470.
 Common field, laying out of, 4213.
 Commonable lands, their origin and kinds, 3234; principles of appropriating and dividing, 3247.
Comparetti, his work on agriculture, page 1177. A. D. 1758.
 Composts, their formation and uses, 4593; meadow bank middens, 4595.
 Condition of horses, 5754.
 Congo, agriculture of, 1082.
 Constantia wine, history of, at the Cape of Good Hope, 1094.
 Contraction in the feet, 5851.
 Conversion of grass lands to arable, 5261; rotation of crops, 5279.
Convolvulus batatas (figured), Spanish or sweet potatoes, 238.
Convolvulus edulus, cultivated in Japan for its tubers, 949.
Cooke, James, his work on agriculture, page 1166. A. D. 1784.
Cooke's corn drill, 2552; three-row drill, 2554.
 Coops for poultry, 6679.
Coole, Sir Charles, Bart., his works on agriculture, page 1168. A. D. 1801.
Copineau, Abbé, his work on agriculture, page 1173. A. D. 1780.
 Coppice woods of Flanders, 529.
 Coppice woods, season and modes of cutting and managing, 3739.
 Cordage plant of China, *Sida tiliaefolia*, 974.
 Coriander, 5449.
 Cork, what, from what plants obtained, how manufactured and used, 1465.
 Cork-tree in Spain, 726.
 Cork, agricultural survey of, 7089.
 Corn stands, 2746.
 Corn, its preservation in granaries or other stores, principles of, 1797.
 Corn screen, 2435.
 Corn drills, 2552.
 Corn barn, 2689; English corn barn, 2690; threshing floor, 2691; threshing mill barn, 2697.
 Corn, invention of its culture, 11.
 Corn measures, 2443.
 Corn bin, 2441.
 Corn sacks, 2444.
 Corn laws, history of, 742.
 Corn laws first introduced in England, 240.
 Corns in the feet of horses, 5853.
 Cornwall, agricultural survey of, 7039.
 Cortorphan cream, 6373.
Costa, Ch., his work on agriculture, page 1176. A. D. 1802.
 Cottage buildings, their arrangement, 3879; tradesman's cottage, 3873, 3878; double cottages, 3874, 3876; cottages for laborers, with cow-house and pigery, 3877; picturesque cottages, 3879; entrance lodges, 3880.
 Cottage gardens of Cheshire, 7028.
 Cottage gardens, premiums for their cultivation in Buckinghamshire, 6998.
 Cottage huts of Finland and Lapland, 671.
 Cottage system on the Trentham estates, 7011.
 Cottage system of East Lothian, 7048; of Berwickshire, 7049.
 Cottage lands, to lay out, 3835; size, 3836; cottage farms, 3839.
 Cottage or cabin of Ireland, 815.
 Cottages of Egypt (figured), 1062.
 Cottages, their establishment on estates, 3569.
 Cottages of Flanders, 538.
 Cottages of Sweden, 671.
 Cottages of Nubia, 1065.
 Cottages in Switzerland, 335.
 Cottages of China, 956.
 Cottages of Moldavia, 739.
 Cottages of Ayrshire, 7055; fig. 812.
 Cottages of Berkshire, 7009; fig. 777.
 Cottages of Kincardineshire, 7063.
 Cottages of West Lothian, 7059; fig. 814.
 Cottages of Cornwall, 7039.
 Cottages of Dumfriesshire, 7053.
 Cottages for farm-servants, 2718; accommodation, 2719, 2720; smallest size, 2720; double cottage and cow-house, 2721; Wood's seven principles for constructing cottages, 2722; walls of cottages, 2731; stairs, 2732; ornamental cottages, 2734.
 Cotton plant, culture of, in Jamaica, 1188.
 Cotton, culture of, in Sumatra, 1019.
 Cotton plant, *Gossypium herbaceum* (figured), culture of in Italy, 318.
 Cotton plants of China, 975.
 Couch grass rake, 2593.
 Cough in sheep, 6508.
 Cough, chronic, 5788.
 Course of a river, to change, 4045.
Cosensy, Andrew, Esq., M.D., his works on agriculture, page 1169. A. D. 1808.
 Covers for stacks, 2750.
 Cow, criteria of one of superior excellence, 6138.
 Cow, club for purchasing, 7022.
 Cow of Tunis (figured), 1068.
 Cows for the dairy, management of, 966.
Coxe, Daniel, M.D., his work on agriculture, page 1163. A. D. 1674.
 Cracks and grease in horses, 5845.
Cramer, John Andrew, his work on agriculture, page 1176. A. D. 1768.
 Crane fly, or wire worm, 6907.
 Craw or cray fish, 6841.
 Cream, different preparations of, 6369.
Crescentius, Crescenzio, or de Crescentiis, his works on agriculture, page 1177. A. D. 1471.
 Cross, 5501.
 Cricket, 6881.
 Cromarty, agricultural survey of, 7068.
 Crone, an old ewe, 6413.
 Cropping, nicking, and docking in horses, 577.
 Crops, rotation of, for different soils, 4549; strong deep lands, 4558; their clays, 4561; peat soils, 4562; light soils, 4563.
 Crops cultivated by the Romans, 148; cereal grasses, 148; legumes, 149; herbage plants, 150; manufactory plants, 152; ligneous crops, 153; fruits, 154.
 Crossing the breed of animals, physiologically considered, 2006.
Croton sebiferum, the tallow tree of China, 968.
Crud, Le Baron, E.V.B., his work on agriculture, page 1175. A. D. 1825.
 Cuba, agriculture of, 1173.
 Cuckoo spit, Cicada, 6883.
 Cud, loss of, in cattle, 6969.
 Culinary vegetables, culture of, in Flanders, 485.
Culley, George, his works on agriculture, page 1165. A. D. 1786.
Culley, George, his practice in breeding animals, 9015.
 Cultivated lands, to improve, 4307; farms and farm lands, 4210.
 Cultivating the soil with pronged implements, 3019.
 Cultivators, 2527.
 Culture, its general effect on vegetables, 1730; on culinary vegetables, 1731; fruits, 1732; plants of ornament, 1733.
 Culture of corn, its invention, 11.
 Culture of grasses, 5086.
 Cumberland, agricultural survey of, 7025.
 Curb of the hock in horses, 5843.
 Curds and cream, 6571; curds and whey, 6570.
Currie, William, his work on agriculture, page 1165. A. D. 1790.
Curruca, John Christian, M.P., his works on agriculture, page 1169. A. D. 1809.
 Cuscuta europaea, or dodder (figured), 172.
 Custard apple, *Anona tripetala*, (figured), 1165.

- Dostie*, Robert, Esq., his work on agriculture, page 1165. A.D. 1768.
- Double mould-board plough, 2500.
- Double share plough, 2496.
- Double furrow plough, 2498.
- Douglas*, Robert, D.D., his work on agriculture, page 1163. A.D. 1798.
- Dourches*, Charles, his works on agriculture, page 1174. A.D. 1803.
- Dovecot, 6773; see Pigeon-house.
- Down, agricultural survey of, 7106.
- Dragging, 2893.
- Dragon fly, 6897.
- Draining, history of, 3909; general theory of the causes of wetness in lands, 3910; boggy land, 3929; hilly lands, 3941; mixed soils, 3944; retentive soils, 3949; mines, quarries, and pits, 3955; formation and materials of drains, 3967; implements peculiar to draining, 3985; season, 3980.
- Draining, theory of its effects on soils, 2141.
- Draining ploughs, 2518; Clarke's, 2519; Grey's, 2520; gutter plough, 2521; mole plough, 2522.
- Draining auger, 2431.
- Draining among the Romans, 143.
- Draining on the Trentham estates, 7011.
- Drains, different sorts of, 3961; of conveyance, 3962; of collection, 3963; boxed and rubble drain, 3964; brick drain, 3965; gravel or cinder drain, 3967; wood drain, 3968; spray drain, 3969; straw drain, 3970; turf drain, 3971; triangular sod drain, 3972; hollow furrow drain, 3973; earth or clay pipe drain, 3974; turf pipe drain, 3975; Cheshire turf drain, 3976; mole drain, 3977; wheel drain, 3978; wheel gutter drain, 3979; season for forming drains, 3980; duration, 3982; expense, 3983; enemies of drains, 3984.
- Dralet*, his work on agriculture, page 1174. A.D. 1801.
- Draught machine, 2458; More's, 2459; Braby's, 2460.
- Drill watering machine, 2564.
- Drill culture by Tull, history of, 756.
- Drill culture, history of, in Dumfriesshire, 7053.
- Drill barrow, 2470; turnip barrow drill, 2472.
- Drilling, 3025.
- Drill roller, 2563.
- Drilling turnips, history of, in Northumberland, 7024.
- Drinks and balls, mode of giving, in veterinary surgery, 5863.
- Drinks used in veterinary medicine, 5901.
- Driver*, Abraham and William, their work on agriculture, page 1167. A.D. 1794.
- Driving cattle in a threshing machine, 3033.
- Driving carts and waggons, 3031.
- Dromedary of Arabia, 874.
- Drury*, Charles, his works on agriculture, page A.D. 1810.
- Dry rot, cause of, 3755.
- Dublin, agricultural survey of, 7076.
- Dublin society, establishment of, 801.
- Dubois*, Louis, his work on agriculture, page 1175. A.D. 1824.
- Dubois*, J. B., his work on agriculture, page 1173. A.D. 1790.
- Dubourden*, Rev. John, his works on agriculture, page 1168. A.D. 1802.
- Duck, *Anas boschus*, 6733; varieties, 6734; Rhone, 6735; Aylesbury, 6736; canvas-backed, 6737; Muscovy, 6738; breeding of ducks, 6739; incubation, 6740; fattening, 6742; decoys for wild ducks, how to form, 6743.
- Ducks of Aylesbury, 6998.
- Ducks, rearing of, in China, 983.
- Duck's skim coulter plough, 2494.
- Ducouëdic*, his work on agriculture, page 1174. A.D. 1800.
- De Gard*, his observations on killing animals by pithing and slaughtering, 2047.
- Dumfriesshire, agricultural survey of, 7053.
- Dummond, a wedder sheep, 6413.
- Dumont*, Courset, his work on agriculture, page 1173. A.D. 1784.
- Dunbartonshire, agricultural survey of, 7057.
- Duncumb*, John, A.M., his works on agriculture, page 1168. A.D. 1801.
- Dung, 2210; see Manures of animal and vegetable origin.
- Dung yards and pits, 2741.
- Dung drag, 2387.
- Dunrobin House, 7070, fig. 819.
- Dupont*, his works on agriculture, page 1172. A.D. 1764.
- Duration of animals physiologically considered 1954.
- Durham, agricultural survey of, 7053.
- Durion, a fruit of Hindustan, 896.
- Dutch, or short-horned breed of cattle, 6109.
- Dutton*, Hely, Esq., his works on agriculture, page 1169. A.D. 1808.
- Duvergé*, his work on agriculture, page 1172. A.D. 1763.
- Dyeing and thread plants, substitutes for, 5389.
- Dysenteric inflammation, 5801.
- Dysentery in sheep, 6515.
- Dysentery or braxy in horned cattle, 6957.

E

- Earth borer, 2428; of peat, 2430; draining sayer, 2431.
- Earth, estimating the expense of excavating and removing, 3082.
- Earth track, 2389.
- Earth walls, different sorts of, 2945.
- Earths afforded by plants, 1476; lime, 1477; silica, 1478; magnesia, 1479; alumina, 1480; metallic oxides, 1481.
- Earths, as ingredients of vegetable food, 1505.
- Earths and soils considered with reference to culture, 2054; formation of soils, 2055; surface earth, 2059; rocks, how converted into soils, 2061; peaty soils, 2062; classification of soils, 2067; genera, 2068; species, 2069; table of genera, species, and varieties, 2070; discovering the qualities of soils by the plants which grow on them, 2072; by analysis, 2083; mechanically and empirically, 3087; uses of the soil, 2095; improvement of soils, 2114; pulverisation, 2113; compression, 2122; fallowing, 2124; alteration of the constituent parts, 2130; incineration, 2133; by water, 2141; by atmospheric influence, 2150; by rotations of crops, 2154.
- East Lothian, agricultural survey of, 7048.
- East Meath, agricultural survey of, 7084.
- East Riding of Yorkshire, agricultural survey of, 7022.
- Eastern coast of Africa, agriculture of, 114.
- Eboulement, 330; of Mount Grenier, 331.
- Eckhart*, J. Gii, von, his work on agriculture, page 1175. A.D. 1754.
- Economical societies of Spain, 694.
- Economy of live stock and the dairy, 5546.
- Eddoes, Arum and Caladium, various species, 1186.
- Edgeworth*, Richard Lovell, Esq., F.R.S. and M.R.I.A., his essay on roads, page 1170. A.D. 1810.
- Edible tubers, cultivated in China, 976.
- Education, Mr. Farey's ideas on, 7014.
- Education, Mr. Vancouver's ideas on, 7038.
- Eel, 6812.
- Eels, natural history of, by Headrick, 7064.
- Eggs, preservation of, in Derbyshire, 7014.
- Eggs of insects, different sorts, 6864; to destroy, 6890.
- Egypt, ancient, its agriculture, 8; its embankments, 12; landed property of, 13; soil of, 14; agricultural productions of, 15.
- Egypt, modern, agriculture of, 1045; climate and surface, 1046; fertility, 1047; limits of cultivated Egypt, 1048; landed property, 1049; occupations, 1050; products, 1051; rice, 1052; wheat, 1053; flax, 1054; hemp, 1055; sugar cane, 1056; fruit trees, 1057; live stock, 1058; buffalo, 1059; horses, 1060; asses, 1061; camel and dromedary, 1062; implements, 1063; operations, 1064; Nubia, 1065.
- Elaboration of the sap of plants, 1534; of carbonic acid, 1530; oxygen, 1531.
- Electricity, its influence on vegetation, 2280; artificial electricity proposed by Darwin and Williams, 2262.
- Elephant of India, 903.
- Elevation, its influence on vegetables, 1638.
- Elkington*, Mr. Joseph, the drainer, some account of, 7012.
- Elliot*, ———, his work on agriculture, page 1173. A.D. 1764.
- Ellis*, William, his works on agriculture, page 1164. A.D. 1732.
- Elstob*, W., his account of fens, &c., page 1166. A.D. 1793.
- Elymus arenarius*, *geniculatus* and *sibiricus* (figured), 4906.

- Embanking, 3337; history, 3998; general principles, 4001; pressure of still water, 4002; situation of the bank, 4004; direction, 4005; construction, 4006; materials, 4007; drains and floodgates, 4008.
- Embankments, different kinds of, 4016; earthen wall, 4017; mound, 4018; mound and puddle wall, 4024; mound with reversed slopes, 4025; mound faced with stones, 4026; mound and wicker hedge, 4027; sea wall, 4028; embankments of Holland, 4031.
- Embankments, when first formed in England, 239.
- Embankment in Ceylon, 919.
- Embankments of ancient Egypt, 12.
- Embankments and canals of modern Egypt, 1048.
- Embankment in the Isle of Wight, 7023.
- Embankments of Cambridgeshire, 7001.
- Embankments in Lincolnshire, 7016.
- Embankments in North Wales, 7044.
- Embankments of Flanders, 440; of Snaerskirke, near Ostend, 441.
- Embrocations used in veterinary practice, 5906.
- Emigration to independent America, and other places, comparative view of, 1148.
- Enclosing plantations, 3643.
- Endemical diseases of animals, 1956.
- Engel, Lud. Hm. Hs. von, his work on agriculture, page 1176. A.D. 1813.
- England, agricultural survey of, 6991; Middlesex, 6992. (See the other counties.)
- England, agriculturists of, 6925; laborers, 6926; apprentices, 6927; journeymen, 6928; hedger, 6929; woodman, 6930; head ploughman, 6931; farm bailiff, 6932; balliff and gardener, 6933; forester, 6934; land steward, 6935; under steward, 6936; demesne steward, 6937; court farmer, 6938.
- England, agriculture in, during the early part of the sixteenth century, 221.
- England, agriculture in, during Queen Elizabeth's time, 223.
- En pisé, or rammed earth walls, 2848.
- Epidemic fever or pest, 5767.
- Epidemical diseases of animals, or epizootics, 1956.
- Epilepsy, 5769.
- Epping butter, 6187.
- Erskine, John Francis, Earl of Marr, his work on agriculture, page 1167. A.D. 1795.
- Erschenbach, Ch. Ghid., his work on agriculture, page 1176. A.D. 1802.
- Escher, von Berg, his work on agriculture, page 1176. A.D. 1808.
- Essex, agricultural survey of, 6996.
- Estate, management of Sir Joseph Banks's in Lincolnshire, 7016.
- Estimating the value of work and materials, 3083.
- Estimating weight, power, and quantity, 3078.
- Etienne, Charles and J. Liebaert, their works on agriculture, page 1171. A.D. 1529.
- European Turkey, agriculture of, 729; climate, 730.
- Evelyn, John, his work on agriculture, page 1163. A.D. 1661.
- Execution of improvements, how to conduct, 4238.
- Exhalation of plants, 1326.
- Exotic vegetables, their introduction into Britain, 1770; in the reign of Edward VI., Mary, Elizabeth, &c., to George III., 1770.
- Extract, what, from what plants obtained, and its application, 1382; extract of catechu, 1383; of senna, 1384; of quinquina, 1385; of saffron, 1386; uses of extracts in medicine, 1387.
- Eyes of horses, diseases of, 5770.
- F.
- Fabbioni, Adamo, his works on agriculture, page 1177. A.D. 1802.
- Fabric, —, his work on agriculture, page 1174. A.D. 1800.
- Faggoting, 2968.
- Fairbairn, John, his work on agriculture, page 1171. A.D. 1823.
- Falconer, William, M.D. F.R.S., his essay on the preservation of the health of persons employed in agriculture, &c., page 1165. A.D. 1789.
- Fallow deer, C. dama, 6619.
- Fallows, working of, 4568.
- Fallowing, theory of, 2124; origin of fallows, 2129.
- Fallowing among the Romans, 128.
- Farcy and glanders, 5823.
- Farcy, John, sen., his work on agriculture, page 1170. A.D. 1811.
- Farish, John, his treatise on florin grass, page 1170. A.D. 1810.
- Farm cottages, 2718; see cottages.
- Farm offices of Cornwall, 7039.
- Farm servants, management of, in East Lothian, 7048; state of, in Mid Lothian, 7047.
- Farm servants, diet of, in Angushire, 7064.
- Farm yard dung, management of, 4580.
- Farm servants of Flanders, 533.
- Farm yards; see Farmeries.
- Farm lands, to shelter by plantations, 4223.
- Farm lands, their culture, 4547; general processes, 4548.
- Farm lands, to lay out, 3882; roads, 3883; size of fields, 3885; square fields, 3887; oblong fields, 3838; hedge row trees, 3899; gales, 3901; drainage and water courses, 3902; example from a newly enclosed common, 3903.
- Farm houses in Flanders, 537.
- Farm houses of Tuscany, 284.
- Farm houses of the emigrants to America, 1138, 1146.
- Farm house, octagonal, of the Duke of Bedford, 6999; rectangular, 6999, fig. 774.
- Farm houses of the Marquess of Stafford, in Staffordshire, 7011; of the Anson's there, 7011.
- Farm houses of Middlesex, 6992.
- Farm houses of Norfolk, 7003.
- Farm management, 4508; keeping accounts, 4509; management of servants, 4522; arrangement of labor, 4534; domestic affairs, 4545.
- Farm management of the Romans, 71.
- Farmery of the Earl of Chesterfield, 7014.
- Farmery in the Netherlands, plan of, 432.
- Farmeries of Scotland (figured), 780; of Tuscany, 284.
- Farmeries, their arrangement, 2757; requisites, 2758; for mixed husbandry, 2759; small size, 2760; larger, 2761; a Berwickshire farmery, 2762; for an arable farm on a large scale, 2763, 2764; a Staffordshire farmery, 2765.
- Farmeries, to arrange and lay out, 3851; Sidera Hall, 3855; a Northumberland example, 3857; Fearn, 3858; Knollwall, 3860; Newstead, 3861; Berwickshire example, 3863; Middlesex example, 3866, 3868; anomalous design, 3869; meadow farm, 3870; turnip farm, 3871.
- Farmeries of Cheshire, 7028, fig. 798.
- Farmeries of Mid Lothian, 7047.
- Farmeries of Kincardineshire, 7065.
- Farmeries of Berwickshire, 7049.
- Farmeries of East Lothian, 7048.
- Farmeries of Northumberland, 7024, fig. 797.
- Farmeries of the nomadic agriculturists of Morocco, 1075.
- Farmeries of Mexico, 1160.
- Farmeries of Jamaica, 1179.
- Farmers, personal character and expectations of, 4447.
- Farmers among the Romans, 60.
- Farmers of Tuscany, 285.
- Farmers of Germany, 546.
- Farmers of Flanders, their domestic circumstances, 531.
- Farmers of Mid Lothian, 7047; of Berwickshire, 7049.
- Farmers of North Wales, 7044.
- Farmers, to improve; see Improvement of farmers.
- Farmer's dwelling house, 2712; smaller size, 2714; larger, 2715; second degree, 2716.
- Farmer's society of Dalkeith, 7047.
- Farmery of Ceylon, 918.
- Farming lands of France, 388; corn farming, 389.
- Farming society of Fife, 7062.
- Farming, Scotch, in Oxfordshire, 7004.
- Farming in Ireland, 812.
- Farms, British, different kinds of, 6981; cottage farms, 6981; working mechanics, 6982; village tradesmen, 6983; town and city tradesmen, 6984; of wealthy citizens, 6986; of demesnes, 6987; of professional farmers, 6988.
- Farms, selection, hiring, and stocking of, 4351; circumstances of the farm, 4352; climate, 4353; soil, 4378; subsoil, 4395; elevation, 4399; character of surface, 4404; aspect, 4406; situation in regard to markets, 4408; extent, 4416; tenure, 4421; rent, 4425; taxes and other burdens, 4437; other particulars, 4445; personal character and expectations of the farmer, 4447; capital required, 4454; choice of live stock, 4462.
- Farms and farmeries of the Romans, 72.
- Farriery, its influence on the health of animals, 9077.
- Fattening of calves, 6167.

- Fattening horned cattle, 6174.
 Fearn, farm of, 3858.
 Features of plants, as an index to their native country, 1738.
 February, weather, and agricultural operations to be performed in, page 1190.
 Feeding animals, principles of, 2024.
 Feeding cattle, operation of, 2995.
 Feeding animals for extraordinary purposes, 2038.
 Feeding tub or trough, 2438.
 Felis catus, the cat, 6668.
 Fellenberg, Emmanuel, his establishment at Hofwyl, 343; his works on agriculture, page 1176. A.D. 1808.
 Felling timber trees, 5752; preparation, 5754.
 Fen lands of Cambridgeshire, 7001.
 Fences, hedges, compound sorts, 2803; single hedge and ditch, 2803; hedge and bank, 2804; Devonshire fence, 2806; hedge with posts and rails, 2807; hedge and dead hedge, 2808; hedge and wall fence, 2809; hedge and row of trees, 2811; hedge and belt of planting, 2812; hedge and corners planted, 2813; furze fence, 2814.
 Fences, hedge kinds, 2780; dead hedges, 2781; live hedges, 2782; choice of hedge plants, 2783; preparation of the soil, 2784; age of the plants, 2785; assorting the plants, 2787; dressing and pruning the plants, 2788; after management of the hedge, 2789; pruning, 2790; management of old hedges, 2794.
 Fences used in agriculture, 2767; situation, 2768; kinds, 2771.
 Fences, walls, 2831; dry stone, 2832; land stones, 2833; quarried stones, 2834; galloway dike, 2835; stone and lime, 2836; stone and clay, 2837; stone and clay dashed with lime, 2838; dry stones lipped with lime, 2839; dry stones lipped and harled, 2840; dry stones pinned and harled, 2841; dry stone and paling, 2842; bricks, 2843; frame walls, 2844; turf walls, 2845; stone and turf walls, 2846; mud and straw, 2847; rammed earth or *en pie*, 2848; stamped earth, 2849.
 Fences, ditch or drain kinds, 2772; open ditch, 2774; simple ditch, 2775; double ditch, 2776; bank of earth, 2777; ha-ha, or sunk fence, 2778; double ditch and hedge, 2779.
 Fences, paling, 2815; nailed paling, 2816; horizontal paling, 2817; upright lath paling, 2818; horizontal paling, 2819; chain fence, 2820; rope fence, 2821; hurdles, 2822; wattled fence, 2824; paling of growing trees, 2825; shingle fence, 2826; worked fence, 2827; park paling, 2830.
 Fences for plantations, 3643.
 Fences of Sweden, 670.
 Fencing among the Romans, 144.
 Fernanagh, agricultural survey of, 7100.
 Fermenting of manures, theory of its effects, 2206.
 Ferrario, G. A., his works on agriculture, page 1178. A.D. 1818.
 Ferret, 6671.
 Festuca fluitans, manna grass, its culture in Russia, 656.
 Festuca fluitans, its culture as a grain, 4733.
 Fetlock, strains of, 5835.
 Fever in sheep, 6503.
 Fever in horned cattle, 6245 and 6254.
 Fever medicines used in veterinary practice, 5909.
 Fibrina, obtained from the papaw tree, 1381.
 Field beet, culture of, 4202.
 Field gate of Holland, 421.
 Fields, shape and size of, to improve, 4218, 4221.
 Fifeshire cattle, 6124.
 Fifeshire, agricultural survey of, 7062.
 Fig, its culture in France, 411.
 Figs, culture of, in the Morea, 732; capriciousness, 732.
 Filtration of water, 4158.
 Findlater, Rev. Charles, his work on agriculture, page 1168. A.D. 1802.
 Finland, agriculture of, 668.
 Finlayson's rid plough, 2504.
 Fiorinchi, Anton Maria, his work on agriculture, page 1816. A.D. 1816.
 Fiorin hay, to make, 5229.
 Firing, in veterinary surgery, 5873.
 Fischer, H. L., his work on agriculture, page 1176. A.D. 1797.
 Fischer, C. F. J., his work on agriculture, page 1176. A.D. 1785.
 Fish, subjected to cultivation, 6798; carp, 6801; tench, 6803; gudgeon, 6805; perch, 6806; pike, 6808; gold fish, 6809; minnow, 6810; trout and salmon family, 6811; eel, 6812.
 Fish, castration of, 6815.
 Fish, culture of, in Berkshire, 7006.
 Fish ponds, construction of, 6799.
 Fish ponds of France, 307.
 Fisheries, their establishment on estates, 354; marine, 3595; river and lake fisheries, 3605.
 Fisheries, kinds of, 3595; herring, 3596; cod or white fishery, 3597; turbot, 3598; mackerel, 3599; sole, dories, mullet, &c., 3600; stickleback, 3601; pilchards, 3602; lobsters, crabs, &c., 3603; oyster, 3604; salmon, 3605; trout, 3606; crawfish, 3607; leech, 3608.
 Fisheries of Sutherland, 7070.
 Fishery, art of, in China, 986.
 Fistulous withers, 5780.
 Fitzherbert, Sir Anthony, his works on agriculture, page 1162. A.D. 1532.
 Flail, 2399.
 Flax, its culture and management, 5292; pulling, 5304; rippling, 5306; watering, 5311; breaking without watering, 5320; flax seed jelly, 5325.
 Flax, its culture in Egypt, 1054.
 Flax, culture of, in Flanders, 472.
 Flea, Pulex, 6912.
 Fleming, or Fleming, Malcolm, M.D., his works on agriculture, page 1179. A.D. 1754.
 Flexible tube, 2442.
 Flies, dragon, 6897; day fly, 6898; spring fly, 6899; gall fly, 6901; saw fly, 6902; gad fly, 6906; crane fly, 6907; flesh fly, 6908; Hessian fly, 6908, and 6862; cheese fly, 6908; gnat fly, 6909; spider fly, 6910; forest fly, 6910.
 Flints, 3380.
 Floating land, 4110.
 Floating islands in Mexico, 1154; in New England, 1155.
 Floods, injuries by, to guard against, 4038.
 Flowing meadows, 4094.
 Floyd, Edward, his works on agriculture, page 1165. A.D. 1694.
 Fluke worms in sheep, 6528.
 Flux, slimy, — see Dysentery.
 Fly, common, 6908.
 Foals and mares, treatment of, 5976.
 Fogs, their influence on the earth, 2290.
 Folds for cattle of the Hottentots, 1110.
 Fomentations in veterinary surgery, 5865.
 Fontalard, Jean Francois de, his work on agriculture, page 1174. A.D. 1794.
 Food of plants, 1495; water, 1496; gases, 1497; extent, 1502; salts, 1504; carths, 1505; carnos, 1510.
 Food of horses, 6015.
 Foot, Peter, his work on agriculture, page 1167. A.D. 1794.
 Foot of the horse, physiology of, 5747.
 Foot rot in sheep, 6523.
 Foot stoppings for horses, 5918.
 Founder, or chronic founder, in the foot, 5860.
 Forbes, Francis, Gent., his works on agriculture, page 1165. A.D. 1778.
 Fordyce, George, M.D. F.R.S., his work on agriculture, page 1164. A.D. 1763.
 Forests of Sweden, 684.
 Forests and woodlands of Flanders, 519.
 Forests of Poland, 636.
 Forests of Russia, 661.
 Forests of Austria, 626.
 Forests, culture of, in Germany, 555.
 Forests of the Morea, produce of, 735.
 Forests, culture of, in Spain, 736.
 Forests of Persia, 864.
 Forests of Mexico, 1162.
 Forests of China, 1003.
 Forest culture of France, 401.
 Forking, 2892.
 Forks, 2579.
 Forsyth, Robert, Esq., his work on agriculture, page 1169. A.D. 1804.
 Foul in the foot, in cattle, 6272.
 Foulness of Africa, agriculture of, 1078.
 Fowls, anserine or aquatic, 6732; duck, 6733; goose, 6746; swan, 6752; bustard, 6756; gallinaceous, 6890; diseases of, 6757.
 Fowls, mode of feeding, so as to enlarge their liver, 2041.
 Fowls, mode of fattening for the London market, 2040.
 Fox, 6848; to shoot, 6849; to take with a hook, &c. 6850.
 Fox, John, his works on agriculture, page 1167. A.D. 1794.
 Fox, William, his work on agriculture, page 1167. A.D. 1796.

- France, agriculture of, from the fifth to the seven-
teenth century, 185.
- France, present state of agriculture in, 373; progress
from the time of Louis XIV. to the present time,
374; state during the revolution, 376; surface,
376; soil, 380; climate, 381; landed property,
387; farming lands, 388; corn farming, 389;
meadows, 390; sheep, 391; beasts, 392; dairies,
394; poultry, 395; swine, 396; fish ponds, 397;
implements and operations, 398; plants cultivated,
400; forests, 401; vine, 407; mulberry and silk
worm, 408; olive and other fruits, 410.
- Frances, Aimé, his work on agriculture, page 1175.
A.D. 1822.
- François, Nicolas, his works on agriculture, page
1172. A.D. 1763.
- Fraser, Robert, Esq., his works on agriculture, page
1166. A.D. 1793.
- Free-martin, a term signifying a barren heifer,
that has been a twin with a bull-calf.
- French's turnip drill, 2556.
- Fret, colic, gripes, or gullion, 5805.
- Friendly islands, agriculture of, 1039.
- Frog, esculent, 6817.
- Frog hopper, 6883.
- Frog, tree, or singing frog, 6818.
- Fromage-de-Frère, C. Michel F., his work on agri-
culture, page 1174. A.D. 1802.
- Frontal worms in sheep, 6527.
- Frost, theory of, 2306.
- Frost shoes for horses, 5936.
- Fruit trees in orchards, 3776.
- Fruit trees in Switzerland, 338.
- Fruits among the Romans, 146.
- Fuci, or sea-weeds, their culture and manufacture,
5529.
- Fucus lichenoides, and other sea-weeds exten in
Cochin China and China, 944.
- Fucus saccharinus (figured), 1307; palmatus (fig-
ured), edulis (figured), 1307.
- Fulleton, Col., his work on agriculture, page 1166.
A.D. 1793.
- Fulher's thistle, its culture, 5339.
- Fumigations used in veterinary practice, 5913.
- Fungi, or mushroom tribe, their utility, 1310.
- Furrow roller, 2583.
- Furze or whin, culture of, 5076.
- G.
- Gacon Dufour, Marie-Armande-Jeanne, his work
on agriculture, page 1174. A.D. 1807.
- Gad fly, 6906.
- Gagliardo, G. B., his work on agriculture, page
1178. A.D. 1813.
- Gaiting, operation of, 2940.
- Galeotti, Francesco, his work on agriculture, page
1177. A.D. 1867.
- Gall in sheep, 6515.
- Gall fly, 6901.
- Gallinaceous poultry, 6680.
- Gallizioli, Filippo, his work on agriculture, page
1178. A.D. 1815.
- Gallo, Agostino, his works on agriculture, page
1177. A.D. 1564.
- Galloway dyke, 2835.
- Galway cattle, 7054.
- Galway, agricultural survey of, 7095.
- Gamboge gum, in Cambodia, 943.
- Garden farms of Essex, plan of, 6996.
- Gardens of laborers' cottages, 2756.
- Gardens and orchards of Middlesex, 6992.
- Gardens of mechanics in Lancashire, 7027.
- Gases as ingredients of vegetable food, 1497.
- Gates appropriate to agriculture, 2850; principles of
construction, 2851; timber gates, 2856; iron
gates, 2857; pillars of gates, 2858; fastenings,
2860; swing gates, 2864; tressel bar gate, 2866;
slip bar gate, 2867; chained slip bar gate, 2868;
wicket gate, 2869; styles, 2870; style of falling
bars, 2871; folding gate, 2873; Clarke's sash
gate, 2874.
- Gathering, operation of, 2900.
- Gautieri, Giuseppe, his work on agriculture, page
1177. A.D. 1807.
- Gasciur, Nicholas, his work on agriculture, page
1177. A.D. 1758.
- Geese, how to feed, so as to enlarge their livers,
9041.
- Gemmiparous animals, 1949.
- Geographical position, its influence on vegetables,
1688.
- Geographical distribution of animals, 1962.
- Geology considered with reference to agriculture,
2053.
- Germany, present state of agriculture in, 543;
general view, 544; Denmark, Greenland, and
Iceland, 558; Prussia, 563; Hanover, 581;
Saxony, 596; Bavaria, 603; Austria, 607.
- Germany, agriculture of, from the fifth to the seven-
teenth century, 192.
- Germination of the seeds of plants, 1486; physical
phenomena, 1493; chemical phenomena, 1494.
- Ghee, an article of diet in Hindustan, made from
the milk of the buffalo, 898.
- Giacinto, P. Carlo, his work on agriculture, page
1178. A.D. 1811.
- Gialdi, Giuseppe, his work on agriculture, page
1178. A.D. 1818.
- Gid in sheep, 6524.
- Gilbert, Francois-Hilaire, his works on agriculture,
page 1174. A.D. 1797.
- Girdling trees, 1642.
- Girtou, Daniel, his treatise on pigeons, page 1166.
A.D. 1779.
- Glaciers, or ice hills, 334.
- Glanderous rot in sheep, 6508.
- Glanders and farcy, 5823.
- Glossology, or the study of the names of the parts
of plants, 1266.
- Gloucestershire waggon, 2621.
- Gloucestershire, agricultural survey of, 7006.
- Gluten, how obtained, manufactured, and applied,
1378; its great importance in forming bread,
1379.
- Gnat, 6909.
- Goat, 6583; Angora goat, 6583; Syrian, 6584; cha-
mois, 6585; goats of Wales, 6586.
- Goat, chamois, in Switzerland, 341. ;
- Goat of Hindustan, 901.
- Goggles in sheep, 6524.
- Gold fish, 6809.
- Gold fish of China, 986.
- Gooch, Rev. W., his work on agriculture, page 1170.
A.D. 1811.
- Gooseberry caterpillar, to destroy, 6920.
- Goose, Anas anser, 6746; varieties and species,
6747; Spanish, Embden, Chinese, Canadian,
6748; breeding, 6749; rearing, 6750; feathers,
6751; swan, 6752; Muscovy goose, 6752.
- Gossypium herbaceum (figured), cotton plant, its
culture in Italy, 318.
- Gottward, J. Ch., his work on agriculture, page 1176.
A.D. 1802.
- Grafting and budding, 1621.
- Granadilla passiflora (figured), 1165.
- Granary, 2889; commercial, 2702; perpetual, 2703.
- Grass seed harrow, 2572.
- Grass shoes for horses, 5935.
- Grass lands, their management, 5196; meadows,
5197; for irrigation, 5199; uplands, 5900.
- Grass lands, their conversion to arable, 5261; rota-
tion of crops, 5279.
- Grasses, their culture, 5086; tall growing or hay
grasses, 5092; hay grasses of temporary duration,
5093; hay grasses of permanent duration, 5105;
pasture grasses, 5124; grasses experimented on
at Woburn, 5146; best grasses for straw plait,
5193.
- Grasses, forage and pasture, enumeration, proper-
ties, and culture, 5086. 5195; for the purposes of
plait, 5193.
- Grasshopper, 6882.
- Gravel, 3821.
- Gravel and stone in horses, 5817.
- Gray's seed harrow for wet weather, 2574.
- Gray, Andrew, his work on agriculture, page 1169.
A.D. 1808.
- Grease and cracks in horses, 5845.
- Gravens, William, his work on agriculture, page
1169. A.D. 1804.
- Greece, modern agriculture of; see Thessaly, 736.
- Greg, Thomas, Esq., his work on agriculture, page
1169. A.D. 1809.
- Greek, ancient, their agricultural implements, 24.
- Greeks, ancient, their agricultural products, 27.
- Greeks, ancient, their agriculture, 17.
- Greeks, ancient, landed property among, 21.
- Greenland, agriculture of, 562.
- Greenway, Dr. James, his work on agriculture,
page 1179.
- Grey's draining plough, 2530.
- Griesenthal, William, his work on agriculture,
page 1170. A.D. 1820.
- Gripes, colic, fret or gullion, 5805.

Grooming of horses, 6099.
 Ground nut, *Arachis hypogaea* of China, 678.
 Growth or development of vegetables, physiology of, 1537.
 Grubbers, 2527.
 Grubbing mattocks of Devonshire, 7038.
 Guava of the Mauritius (figured), *Paidium pyriferrum*, 1116.
 Gudgeon, 6805.
 Guernsey and Alderney cattle, 7040.
 Guernsey, agricultural survey of, 7042.
 Guillaume, Ch., his work on agriculture, page 1175. A. D. 1821.
 Guillot, Julien Jean Jacques, his work on agriculture, page 1172. A. D. 1761.
 Guinea grass, *Panicum polygonum* (figured), 1186.
 Guinea hen, *Nimidia*, 6730.
 Guinea pig, 6614.
 Gullion, colic, gripes or fret, 5805.
 Gum, what and how obtained, 1369; uses, 1371.
 Gum arabic tree, *Mimosa nilotica* (figured) 1079.
 Gum resins, from what plants obtained, and how manufactured and used, 1446; galbanum, 1447; ammoniac, 1448; scammony, 1449; opoponax, 1450; euphorbium, 1451; oilbanum, 1452; sagapenum, 1453; gamboge, 1454; myrrh, 1455; assafetida, 1456.
 Gutta serena, 5771.
 Gutter in irrigation, 4065.
 Gutter draining plough, 2521.
 Gypsum, theory of its operation on soils, 2229; introduced to America by Franklin, 2230.

H.

Ha ha, or sunk fence, 2778.
 Hail, theory of, 2308.
 Hainault scythe, mode of mowing with, 2936.
 Hainault scythe in use in Flanders, 502.
 Hair, its nature and properties, 1814.
 Hamez, Du Monceau, Henry Lewis du, his works on agriculture, page 1171. A. D. 1750.
 Hampshire wheel plough, 2513.
 Hampshire, agricultural survey of, 7029.
 Hand barrow, 2451.
 Hand drill machines, 2468; for beans, 2469; turnips, 2470.
 Hand hoeing, 2894; between rows, 2895.
 Hand raking, 2896.
 Hand turnip roller, 2473.
 Hand threshing machine, 2453.
 Hanover, agriculture of, 581; agricultural society founded by Geo. II., 582; landed property, 583; occupiers, 585; sheep, 589; bawlers, farming of, 594.
 Hard labor, how to feed and prepare an animal for, 2045.
 Hare warren, near Banstead Downs in Surrey, 6613.
 Hare, 6612.
 Harnessing cattle, 2996.
 Harrison, Gustavus, Esq., his work on agriculture, page 1165. A. D. 1775.
 Harrowing, growing corn among the Romans, 140.
 Harrowing, 3020.
 Harrows, 2568; common, 2569; angular, 2570; rhomboidal, 2571; grass seed, 2572; brake or leveling harrow, 2573; Gray's seed harrow, 2574; bush harrow, 2576.
 Harrows, circular, 7002.
 Harrows, improved form of, 7014.
 Hartig, Fr. Grafen von, his work on agriculture, page 1176. A. D. 1796.
 Hartiz, Georges Louis, his work on agriculture, page 1176. A. D. 1790.
 Hartlib, Samuel, his works on agriculture, page 1163. A. D. 1645.
 Hasfer, F. W., his work on agriculture, page 1171. A. D. 1756.
 Hatches in irrigation, 4079.
 Hatted kit, a preparation of milk, 6376.
 Hawks, and hawking, 6797.
 Hay, to truss, 2950.
 Hay knife, 2408.
 Hay swoop, 2598.
 Hay stands, 2749.
 Hay tedding machine, 2597; 5225.
 Hay tea, to make, 5234.
 Hay stacks, their formation, 5226; salting, 5233.
 Hay from bog meadows, 5229; from florin meadows, 5229.

Hay-making among the Romans, 138.
 Hayes, Samuel, his work on woods, &c., page 1167. A. D. 1735.
 Haywood's cultivator, 2537.
 Heading down trees, 3689.
 Head main in irrigation, 4080.
 Headrick, James, his works on agriculture, page 1169. A. D. 1807.
 Heat, its agency in vegetable culture, 2246.
 Heat, its influence on the distribution of animals, 1963.
 Hedge bills, 9413; Blackie's bills, 9415.
 Hedge fences, compound sorts, 2803; see Fences.
 Hedge shears, 2410.
 Hedge fences, 2780; young, 2781; old hedges, 2794.
 Hedges of Durham, 7023; of Northumberland, 7024.
 Hedges, old, to manage, 2794; cutting down, 2795; filling up gaps, 2800; mending defects, 2801.
 Hedging and ditching, 2967.
 Hegemon, Philibert, his work on agriculture, page 1171. A. D. 1583.
 Helix pomatia (figured), snail cultivated in Hungary, 624.
 Hemipterous insects, 6877.
 Hemp, its culture and management, 5327; sowing, 5330; pulling, 5332; watering, 5334.
 Hemp, its culture in Egypt, 1055.
 Hempseed oil, its uses, 1418.
 Henderson, J., his work on agriculture, page 1170. A. D. 1812.
 Henderson, Robert, his work on agriculture, page 1170. A. D. 1811.
 Hepatitis, or yellows, 5810.
 Herbage plants, culture of, 4682; nutritive products of, 4684.
 Herding, or tending cattle, 2993.
 Herefordshire and Sussex cattle, 6114.
 Herefordshire, agricultural survey of, 7009.
 Hercsbochtus, Conradus, his work on agriculture, page 1175. A. D. 1578.
 Hermbstadt, Sem. F., his work on agriculture, page 1176. A. D. 1803.
 Hertfordshire and Kentish wheel ploughs, 2514.
 Hertfordshire, agricultural survey of, 6297.
 Hesiod, his poem on rural affairs, 18.
 Hessian-fly, 6862.
 Hesson, Jacques, his work on agriculture, page 1171. A. D. 1569.
 Hide-bound in horses, 5892.
 Higgins, Jesse, his work on agriculture, page 1179.
 Highland cattle, 6118.
 Hill farm, to shelter, 4237.
 Hiltbrand, Aut., his work on agriculture, page 1176. A. D. 1784.
 Hindustan, agriculture of, 877; climate and surface, 878; soil, 879; landed property, 880; agricultural products, 881; sugar cane, 882; indigo, 883; silk-worm, 884; poppy, 885; tobacco, 886; oil plants, 887; palm trees, 888; dates, 884; bamboo, 886; sheep, 886; pastures, 887; live stock, 888; ox, 889; fruits, 900; goat, 901; swine, 902; elephant, 903; camel, 904; predatory animals, 905; implements and operations, 906; cart, 907; irrigation, 906; harvesting, 912.
 Hinnny, 6098; see Mule and hinny.
 History of agriculture during the middle ages, 179.
 History of agriculture, 1; see Agriculture, and the different names of countries.
 Hitt, Thomas, his work on agriculture, page 1164. A. D. 1760.
 Hodgkinson, Joseph, his work on agriculture, page 1167. A. D. 1794.
 Hoe scythe or thistle hoe, 2549.
 Hoeing turnips, history of, in Northumberland, 7024.
 Hoeing, by hand, 2894.
 Hoes, hand, 2389.
 Hoes, horse, 2539; see Horse hoe.
 Hoffmann, A., his work on agriculture, page 1176. A. D. 1809.
 Hofmann, Gl. Bd. Freyherr von, his work on agriculture, page 1176. A. D. 1784.
 Hofwyl, agricultural establishment of, near Berne, 343.
 Hog, 6530; see Swine.
 Hog, a wedder lamb after being weaned, 6413; shear hog, a hog of two years, 6413.
 Hog styes, 2680.
 Hogg, James, his work on agriculture, page 1168. A. D. 1807.
 Hoggit, or hog sheep; see Hog.

Horse, Henry, usually called Lord Kames, 786; his works on agriculture, page 1165. A. D. 1776.
Horne, Francis, M.D., his work on agriculture, page 1164. A. D. 1757.
Horne, Sir Everard, his observations on killing animals by pithing, 5043.
Homer, Henry, his works on agriculture, page 1164. A. D. 1768.
Homestals; see **Farmeries**.
Holcus sorghum (figured), or Indian millet, its culture, 4727.
Holland, Henry, Esq. M.D., his work on agriculture, page 1169. A. D. 1807.
Holland, present state of agriculture in, 418; climate, 418; landed property, 419; pasturage and dairy management, 420; implements and operations, 421.
Holt, John, his works on agriculture, page 1167. A. D. 1795.
Honey dew, a disease of plants, 1660.
Hoed, Thomas Sutton, Esq., his work on gypsum, page 1169. A. D. 1805.
Hoofs of animals, their nature and properties, 1826.
Hoof liquid of veterinary practice, 5914.
Hop, culture of in Flanders, 477.
Hop, its culture and management, 5393; soil, 5396; planting, 5401; after-culture, 5408; manuring, 5411; earthing, 5412; dressing, 5413; poles, 5417; taking the crop, 5425; drying, 5429; bagging, 5431; usual produce, 5435; diseases, 5440; duty on hops, 5448.
Hope, of Rankellor, a great improver, 778.
Hornby, Thomas, Esq., his dissertation on lime, page 1170. A. D. 1815.
Horne, or **Horn**, John, his work on agriculture, page 1166. A. D. 1788.
Horned cattle, 6104; working of, 6125; diseases of, 6244; fattening of, 6174; breeding of, 6144; rearing of, 6152; anatomy and physiology of, 6227.
Hornless or polled breed of cattle, 6115.
Hornor, T., Esq., his method of delineating estates, page 1170. A. D. 1813.
Horns of animals, their nature and properties, 1822.
Horse family, character and history of, 5548; horse, varieties of, 5550; Arabians, 5550; Spanish horses, 5552; French horses, 5553; Flemish, 5554; Dutch, 5555; German, 5556; Polish, 5557; Russian, 5558; Swedish, 5559; British, 5560.
Horse, British varieties of, 5560; race horse, 5561; hunter, 5563; hackney, 5564; old English road-horse, 5565; Irish road-horse, 5567; Cobs, Galloways, and ponies, 5568; British draught horses, 5570; black horse, 5571; Cleveland bay, 5572; Suffolk punch, 5573; Clydesdale horse, 5574; Welch horse, 5575; Galloway, 5576; small horse of the highlands, 5577.
Horse, organology, or exterior anatomy of, 5578; organs of the head, 5580; trunk, 5586; fore-extremities, 5608; hinder extremities, 5622; color of horses, 5625.
Horse, anatomy, or osseous structure of, 5630; anatomy of the head, 5631; of the trunk, 5637; of the extremities, 5644.
Horse, physiology, or functions of, 5660; general functions, 5661; blood vessels, 5671; absorbents, 5680; nerves and glands, 5681; integuments, 5685; the head, 5692; the ear, 5694; the eye, 5697; the nose, 5700; the mouth, 5708; the neck, 5716; the chest, 5718; the abdomen, 5725; the organs of generation, 5739; the feet, 5747.
Horse, diseases of, 5753; in and out of condition, 5754; inflammatory diseases, 5757; diseases of the head, 5769; diseases of the neck, 5780; of the chest, 5783; of the skin, 5818; glanders and farcy, 5823; diseases of the extremities, 5828; diseases of the feet, 5848.
Horse, veterinary operations on, 5861; treatment of wounds, 5862; balls and drinks, 5863; fomentations and poultices, 5865; setons and rowels, 5868; blistering and firing, 5870; clystering and physicking, 5874; castration, nicking and docking, 5877; bleeding, 5878; pharmacopoeia, 5879.
Horse patterns, 5939.
Horse breeding and management of, in Yorkshire, 7021.
Horse hoeing husbandry, origin and history of, 756.
Horse hoeing, 3023; turnips, 3024.
Horse hoes, 2539; Scotch, 2540; Northumberland, 2541; Wilkie's, 2542; Blaikie's, 2544; Morton's, 2545; Amos's, 2547; castor wheel hoe, 2548; thistle hoe, 2549.
Horse stubble rake, 2594.
Horse raking, 3030.

Horse fly, 6910.
Horsemanship, art of, 6002.
Horses, shoeing of, 5925.
Horses, criteria of good qualities, 5940; breeding of, 5960; rearing, 5975; training of, 5984; art of horsemanship, 6002; feeding, 6015; stabling and grooming, 943.
Horses, management and working, 6046; of the hunter, 6056; of the race horse, 6046; of riding horses, 6063; of horses in carriages and coaches, 6072; of cart, waggon, and farm horses, 6074.
Horses, as laboring animals, 4468.
Horses of Hungary, 621.
Horses of Arabia, history of, 875.
Horses, Cleveland bays (figured), 780.
Horses of the Romans, 107.
Horses of the Cape of Good Hope, 1104.
Horses of Egypt, 1060.
Hot yellows in sheep, 6513.
Hottentots' bread, *Elephantopus* (figured), 1111.
Hove, blast, or wind colic in sheep, 6511.
Hove, or blown in cattle, 6258.
Houghton, John, F.R.S., his works on agriculture, page 1163. A. D. 1681.
House cricket, 6881.
Housing roots, 3049.
Howard, Hon. Charles, his work on agriculture, page 1163. A. D. 1678.
Hoyle, Henry, his work on agriculture, page 1168. A. D. 1801.
Huber, Francis, his work on agriculture, page 1176. A. D. 1796.
Huber, P., his works on agriculture, page 1176. A. D. 1801.
Huish, Robert, Esq., his treatise on bees, page 1170. A. D. 1815.
Hungarian horses, 621; grand huras, or breeding stud, 621.
Hungarian sheep, 621.
Hunger, 1930.
Hunger rot in sheep, 6521.
Hunt, Charles Henry, Esq., his treatise on sheep, page 1170. A. D. 1810.
Hunter, Alexander, M.D., F.R. SS. L. and E., his works on agriculture, page 1165. A. D. 1770.
Hunting shoe for horses, 5933.
Huntingdonshire, agricultural survey of, 7000.
Hurdles, 2822.
Hutches, or boxes for rabbits, 6602.
Huts of the improved Hottentots, 1109.
Huts of the native Hottentots, 1108, 1109.
Hazard, Jean Baptiste, his works on agriculture, page 1174. A. D. 1794.
Hybernation of animals, 1974.
Hybrid productions in vegetables, how formed, 1596; supposed limits, 1601; anomalous effects, 1632.
Hybridous animals physiologically considered, 1960.
Hydatids, or staggers in sheep, 6524.

I

Ice, theory of, 2311.
Iceland, agriculture of, 562.
Ichneumon insect, 6903.
Implements for irrigation, 4062; line, reel, and breast plough, 4063; spades, 4064; crescent, 4065; turf knife, 4066; wheelbarrows, 4067; handbarrows, 4068; scythes, 4070; forks and hacks, 4071; water proof boots, 4072.
Implements and operations of French agriculture, 398.
Implements of the ancient Greeks, 24.
Implements of agriculture, their invention in Egypt, 10.
Implements of British agriculture, 2373.
Implements and machines of Cornwall, 7039.
Implements peculiar to draining, 3985; scoop, 3986; shovel, 3987; sod knife, 3988; draining spades, 3989; borers, 3991; auger, 3992; horizontal auger, 3995.
Improved quarry cart, 2617.
Improvement of farmers, 4243; by books, 4244; by schools for their children, 4245; by examples of good culture, 4246; by personal attention, 4248; by conversation, 4249; by encouraging leading men, 4250; by an experimental farm, 4251.
Improvement of lands in culture, 4207; see **Cultivated** lands.
Improvement of estates already more or less improved, see **Cultivated** lands.
Improvement of waste lands, 4159; see **Waste** lands.

Improvements, general cautions in making, 4254.
 Improvements, execution of, 4238.
 Improvements, general obstacles to, in the high-lands, 7071.
 Improvements in Sutherland, 7070.
 Improvements, public, of Ayrshire, 7055.
 Improvements in Berwickshire, history of, 7049.
 Improvements of General Dirom in Dumfriesshire, 7053.
 Improving leases the foundation of Scottish agricultural improvement, 744.
 Incontinence of urine, 5815.
 Independent Tartary, its agriculture, 865; climate, 866; surface, 867; soil, 868; tillage, 869.
 Indian corn, or maize, its culture, 4734.
 Indian millet, *Holcus sorghum* (figured), its culture, 4727.
 Indigo, culture of, in the West Indies, 1189.
 Indigo, *Indigofera tinctoria* (figured), its culture and application in Hindustan, 883.
 Indigo and sugar, attempt to cultivate, in Italy, 58.
 Infancia tree, its uses in Congo, 1084.
 Inflamed liver in sheep, 6513.
 Inflammation of the kidneys, or red water in cattle, 6262.
 Inflammation of the liver in horses, 5810.
 Inflammation of the bladder in cattle, 6264.
 Inflammation, of the brain in horses, or phrenitis, 5760.
 Inflammation of the bowels, 5795.
 Inflammation of the lungs, 5783.
 Inflammation of the stomach in cattle, 6256, 6260.
 Inflammation of the lungs in cattle, 6255.
 Inflammation of the liver, or hot yellows in cattle, 6261.
 Inflammatory fever in horse diseases, 5785; general, 5785; local, 5759.
 Influenza, or catarrhal fever in horses, 5765.
 Influenza, or catarrh, 6248.
 Insects subjected to cultivation, 6821; silkworm, or moth, 6822; honey bee, 6827; craw or crayfish.
 Insects injurious to agriculture, 6862; physiology of insects, 6863; coleoptera, 6871; hemiptera, 6877; neuroptera, 6886; hymenoptera, 6900; diptera, 6905; aptera, 6911; operations for destroying, 6916.
 Insects, to subdue, 6916; preventive operations, 6917; palliative, 6918; destructive, 6919.
 Interitis, or red colic, 5797.
 Inverness-shire, agricultural survey of, 7071.
 Ipecacuanha root, *Cephaelis ipecacuanha*, 1209.
 Ireland, agricultural survey of, 7074.
 Ireland, agricultural circumstances of, 7075.
 Ireland, agriculture of, 795; in the reign of James I., 797; under Cromwell, 800; Dublin society, 801; climate, 804; territorial surface, 805; soil, 806; bogs, 807; landed property, 809; leases, 811; farming, 812; rent, 813; implements and operations, 824; dairy, 829; poor, 831; middlemen, 834; tythes, 836; fertility of the country, 844.
 Irish cattle, 6129.
 Irrigation in Hindustan, 908.
 Irrigation, 4053; history, 4054; soils and situations suitable, 4056; advantages, 4061; implements, 4062; terms made use of, 4074; preparation of surfaces, 4096; warping, 4117.
 Irrigation among the Romans, 141.
 Irrigation in Lombardy, 267.
 Irrigation in Mexico, 1157.
 Irrigation, theory of its effects on soils and plants, 2145; surface irrigation, 2146; subterraneous irrigation, 2147; warping, 2148.
 Irrigation, subterraneous, 4124.
 Irrigation, practice of, at Trentham, 7011.
 Irrigation first introduced in Cambridgeshire, 7001.
 Irrigation and draining, Jessop's ideas on, 7011.
 Irrigation, Parkinson's opinion of, 7017; Loch's opinion of, 7011.
 Isle of Bourbon, 1117.
 Isle of France, or Mauritius, agriculture of, 1116.
 Italy, present state of agriculture in, 290; in Lombardy, 262; in Tuscany, 276; in the Maremma, 298; in the Neapolitan territory, 312.
 Italy, agriculture of, during the middle ages, 180.
 Italy, agricultural circumstances of, during the time of the Romans, 63.
 Itch mite, 6913.

J.

Jackall of India (figured), 906.
 Jacquin, M. E., his work on agriculture, page 1174.
 A. D. 1804.

Jamaica, agriculture of, 1174; landed property, 1175; overseers of estates, 1176; head driver, 1177; laborers, 1178; buildings, 1179; overseers' house, 1180; lime kiln, 1181; houses of the slaves, 1182; live stock, 1184; agricultural operations, 1185; productions, 1186; fruits, 1186; sugar cane, 1187; cotton plant, 1188; indigo, 1189; coffee tree, 1190; cocoa root, 1192; plantain, 1193; Indian arrow root, 1194; other plants, 1195; Guinea grass and Scotch grass, 1196; vermin, 1199.
 January, weather and agricultural operations to be performed in, page 1189.
 Japan, agriculture of, 946.
Jatropha manihot, cultivated in Sierra Leone, 1079.
 Jaundice in sheep, 6514.
 Java, agriculture of, 927.
 Jelly of flax seed, 5325.
 Jersey, Guernsey, Alderney and Sark, agricultural surveys of the islands of, 7040; Jersey, 7041; Guernsey, 7042.
 Jerusalem artichoke, field culture of, 4980.
 Jewish modes of killing animals, 2050.
 Jewish vineyard, 33.
 Jews, their agriculture, 29.
 Jews, landed property among, 31.
 Jews, their agricultural produce, 35.
 Johnson, Cuthbert William, his work on agriculture, page 1170. A. D. 1820.
 Johnson, John, his work on agriculture, page 1170. A. D. 1814.
 Johnston, John, Esq. his work on draining land, page 1167. A. D. 1797.
 Juices of plants, physiologically considered, 1470.
 July, weather and agricultural operations to be performed in, page 1193.
 June, weather and agricultural operations to be performed in, page 1193.

K.

Kali plant, *Salsola kali* (figured), 1120.
 Keith, George Skeene, D.D., his work on agriculture, page 1170. A. D. 1811.
 Kelp, or sea weed, its growth and manufacture, 5529.
 Kent, agricultural survey of, 6995.
 Kent, Nathaniel, Esq. his works on agriculture, page 1165. A. D. 1775.
 Kentish and Hertfordshire wheel ploughs, 2514.
 Kerr, Robert, surgeon, F.R. & A.S.S., his work on agriculture, page 1169. A. D. 1809.
 Kerry, agricultural survey of, 7043.
 Kidney bean, its field culture, 4821.
 Kildare, agricultural survey of, 7080.
 Kilkenny, agricultural survey of, 7079.
 Killing animals, different modes of, considered, 2046.
 Kincardineshire, or Meams, agricultural survey of, 7063.
 King's county, agricultural survey of, 7081.
 Kinross-shire, agricultural survey of, 7061.
 Kirby, Christopher, his work on the effects of thunder and lightning on wheat, &c., page 1163. A. D. 1673.
 Kircudbrightshire, agricultural survey of, 7054.
 Kirkpatrick, H., his work on agriculture, page 1167. A. D. 1796.
 Kirwan, Richard, Esq., LL.D., F.R.S.L. and E. and P.R.I.A., his work on agriculture, page 1167. A. D. 1796.
 Kitchen garden of the farmer, 2754.
 Knapp, J. L., Esq., his work on grasses, page 1181. A. D. 1804.
 Knees, broken, in horses, 5837.
 Knollwall farm, 5860.
 Krantz, Guillaume, his work on agriculture, page 1176. A. D. 1797.
 Kruntz, J. G., his work on agriculture, page 1176. A. D. 1773.
 Kyoce breed of cattle, 6120.

L.

Laboring animals of the Romans, 93; their food, 100; breeding, 94; breaking and training, 95; working, 101.
 Lacroix, his work on agriculture, page 1174. A. D. 1801.
 Lactometers, 6310.
 Ladders, 2418.
 Ladanar, his work on agriculture, page 1164. A. D. 1764.

- Ladrones, agriculture of, 1031.**
Lafaille, Clement, his works on agriculture, page 1172. A. D. 1762.
Laffinas, Barthélemy de, his work on agriculture, page 1171. A. D. 1604.
Lajons, M. de, his work on agriculture, page 1175. A. D. 1821.
Lama Camel, 6631.
Lamb, house or early, how produced for the London market, 2043; see Sheep.
Lambert's mole plough, 2523; Weir's improvement on Lambert's working power, 2524.
Lamba, diseases of, &c. 6529; see Sheep.
Lamoignon, Malcacherbes, Chretien-Guillaume, his work on agriculture, page 1173. A. D. 1791.
Lampadius, Augusto Guglielmo, his work on agriculture, page 1178. A. D. 1811.
Lampas, or mouth disease, 5777.
Lanarkshire or Clydesdale, agricultural survey of, 7056.
Lancashire, or long-horned breed of cattle, 6108.1
Lancashire, agricultural survey of, 7027.
Land guard for river banks, 4041.
Land levelling machine, 2587.
Land surveying required of the agriculturist, 3054.
Landed property, tenures of, 3144; see Tenures.
Landed estates, to lay out, 3224; consolidating detached property, 3228; appropriating commonable lands, 3233; choice of a site for the demesne, 3263; roads, 3263.
Landed property, management of, 4262; superintendants, 4264; steward, 4265; resident manager, 4267; acting manager, 4268; land reeve, 4276; under steward, 4277; law assistant, 4278; land surveyor, 4280; place of business, 4281; duties of managers, 4296; general principles of business, 4297; management of tenants, 4303; letting farms, 4309; species of tenancy, 4310; rent and covenants of a lease, 4326; receiving rents, 4337; keeping and auditing accounts, 4343.
Landed property throughout Germany, 545; in modern Egypt, 1049; in Jamaica, 1175; at the Cape of Good Hope, 1091; in the United States, 1134; in Sweden, 670; in Spain, 698; in ancient Egypt, 13; of Persia, 853; in Poland, 629; among the Jews, 31; in Java, 951; in Hindustan, 880; in China, 958; in Russia, 653; in Switzerland, 328; among the ancient Greeks, 21; in Austria, 608; among the Romans, 53; in Holland, 419; in Savoy, 348; price of, among the Romans, 169; in Ireland, 809.
Landed property, its valuation, 3165; its purchase or transfer, 3212.
Landeschi, his work on agriculture, page 1178. A. D. 1817.
Langford, T., his work on agriculture, page 1163. A. D. 1681.
Language used to horses, 5985.
Laos, agriculture of, 942.
Lark, Alauda, 6791.
La Societé d'Agriculture de Paris, its work on agriculture, page 1175. A. D. 1825.
Lasteyrie, Charles Philibert de, his works on agriculture, page 1174. A. D. 1799.
Lastri, Proposto, his work on agriculture, page 1177. A. D. 1793.
Lawrence, Edward, his work on agriculture, page 1163. A. D. 1727.
Lawrence, John, his works on agriculture, page 1167. A. D. 1796.
Lawrence, John, his work on agriculture, page 1164. A. D. 1796.
Lawson, J., his work on agriculture, page 1164. A. D. 1797.
Lavendar, 5521.
Layers of plants to propagate by, 1819.
Laying out farm and cottage lands, 3835; size of farms and cottage lands, 3836; cottage farms, 3839; farmery, 3851.
Leases granted to farmers, different species of, 4310; at will, 4311; from year to year, 4312; for a term of years certain, 4313; for lives, 4314; for twenty years, 4322; perpetual lease, 4323; rent and covenants, 4326.
Leases, origin of, in Scotland, 749.
Leases in Ireland, 811.
Leases, long, or improving, the foundation of the progress of agriculture in Scotland, 744.
Leatham, Isaac, his work on agriculture, page 1167. A. D. 1794.
Leaves of plants, their great importance in elaborating the sap, 1524.
Leaves of plants to propagate by, 1616.
Lebrocy, Philip, M.A., his plan for improving the New forest, page 1166. A. D. 1793.
Lee, H. P., Esq., his description of a new threshing machine, page 1170. A. D. 1811.
Leech, medicinal, 6845.
Leguminous field plants, their culture, 4737; nutritive products of leguminous plants, 4738.
Leicestershire, agricultural survey of, 7013.
Leitrim, agricultural survey of, 7097.
Lemon of Abyssinia (figured), 1042.
Lentil, its culture, 4815.
Lepidopterous insects, 6888.
Lerouge, his work on agriculture, page 1173. A. D. 1774.
Lesbros-de-la-Versane, Louis, his work on agriculture, page 1172. A. D. 1768.
Lester, William, his works on agriculture, page 1169. A. D. 1803.
L'Etiang, de la Salle, Simon Philibert de, his work on agriculture, page 1172. A. D. 1762.
Letellier, his work on agriculture, page 1171. A. D. 1602.
Lettuce, field culture of, 4681.
Levelling harrow or brake, 2573.
Levelling harrow, 2590.
Levelling staff, 2425.
Levelling machine, 2587.
Levels, 2420; masons' level, 2421; water level, 2422; American level, 2423; square level, 2424.
Levels, to ascertain, 3059.
Lever, 2374.
Ley, Charles, his work on the management of estates, &c., page 1166. A. D. 1787.
Lichen rangiferinus (figured), reindeer moss, 675.
Lichen roccella (figured), the archil or dyers' moss of the Canary Islands, 1120.
Lichenæ or lichens, utility of, 1308.
Liger, Louis, his works on agriculture, page 1171. A. D. 1703.
Light, its agency in vegetable culture, 2246.
Light, 2258.
Light in respect to the culture of vegetables, 1792.
Light, its influence on the distribution of vegetables, 1791.
Lightning, theory of, 2328.
Lime, application of, 4588; mixture of with earth and dung, 4593; application of, by Dawson of Frogden, 4591.
Lime kilns, different kinds of, 3587.
Lime kilns of Jamaica, 1181.
Lime, burning of, 3587; kilns, 3588.
Lime, theory of its operation on soils, 2218; see Mineral manures, different species of, 2217.
Limerick, agricultural survey of, 7091.
Limes of Brazil (figured), 1208.
Limestone of South Wales, 7045.
Limestone to burn in kilns, 3587; in heaps, 3590; to reduce by pounding, 3591.
Lincolnshire, agricultural survey of, 7016.
Line and reel, 2416.
Linlithgowshire, agricultural survey of, 7059.
Linseed cake, theory of its operation as a manure, 2173.
Liquid manure of Flanders, 474.
Liquorice, 5516.
Lisle, Edward, Esq., his works on agriculture, page 1164. A. D. 1757.
Lister, Martin, M.D., his works on agriculture, page 1163. A. D. 1683.
Literature and bibliography of British agriculture, 7108.
Little, John, his work on agriculture, page 1170. A. D. 1815.
Live stock, choice of, 4462; for the purposes of labour, 4463; oxen, 4464; horses, 4468; for breeding, 4470; for feeding, 4482.
Live stock, history of Bakewell's improvements on, 765.
Live stock, buildings for, 2661.
Live stock, economy of, 5546.
Live stock of Herefordshire, 7009.
Live stock of Flanders, 510; horse, 511; shoeing, &c., 513.
Liver, chronic inflammation of, 5810.
Liver diseases, in horses, 5810.
Livingston, Chancellor, his essay on sheep, page 1170. A. D. 1811.
Lley, Cav., his work on agriculture, page 1177. A. D. 1800.
Loango, agriculture of, 1081.
Loch, James, Esq., his work on the improvements of

the estates of the Marquess of Stafford, 7010; his opinion as to hedgerow timber, 3900.
 Locked jaw, or tetanus in horses, 5763.
 Locked jaw, or tetanus in cattle, 6271.
 Lombardy poplar, the oldest in England, 6996.
 Londonderry, husbandry of, 799; agricultural survey of, 7104.
 Long journeys, how to feed and prepare animals for, 3045.
 Long-horned, or Lancashire cattle, 6108.
 Longford, agricultural survey of, 7086.
 Looseness, or diarrhoea, 5804.
 Lord Somerville's drag-cart, 9615.
 Lusana, Matteo, his work on agriculture, page 1178. A. D. 1811.
 Loudon, John, F.L.S. H.S., his work on agriculture, page 1170. A. D. 1811.
 Louise, Pediculus, 6912.
 Louth, agricultural survey of, 7087.
 Low, David, Esq., his work on agriculture, page 1171. A. D. 1823.
 Lowe, Alexander, Esq., his work on agriculture, page 1167. A. D. 1794.
 Lowe, Robert, Esq., his work on agriculture, page 1167. A. D. 1794.
 Luccock, John, his works on wool, page 1169. A. D. 1805.
 Lucern, culture of, 5025.
 Laders, Ph. E., his work on agriculture, page 1176. A. D. 1769.
 Lullin, J. M., his works on agriculture, page 1178. A. D. 1812.
 Lullin, Ch. I. M., his work on agriculture, page 1175. A. D. 1819.
 Lungs, inflammation of, 5783.
 Lupin, its field culture, 4822.
 Lycopodium complanatum (figured), 677.

M.

Machine for reaping clover heads, 2905.
 Machine for mowing clover, 2906.
 Machines for reaping and gathering crops, 2591; horse rakes, 2592; haymaker, 2597; hay swoop, 2598; reaping machines, 2599.
 Machines for sowing and planting, 2551; Cooke's corn-drill, 2552; Norfolk corn drill, 2553; Cooke's three-row drill, 2554; French's turnip drill, 2556; Northumberland one-row drill, 2557; bean drill, 2558; Weir's bean drill, 2559; bean dibbler, 2561; block plough drill, 2562; drill roller, 2563; drill watering machine, 2564.
 Machines for laying land level, 2587; British, 2588; Flemish, 2589.
 Machines for washing roots, 2653.
 Machines for threshing and cleaning corn, 2625.
 Machines of deportation, 2607; carts, 2608; waggon, 2619.
 Machines for steaming food,—see Steaming machines.
 M'Adam's theory and practice of road making, 3333.
 Macdonald, James, M.A., his work on agriculture, page 1170. A. D. 1811.
 M'Ecay, John, his work on agriculture, page 1168. A. D. 1802.
 Mackenzie, Sir George Stewart, Bart. F.R.S.S. I. & E., his work on sheep, page 1169. A. D. 1809.
 M'Farlan, James, M.D., his works on agriculture, page 1168. A. D. 1802.
 Macphail, James, his work on agriculture, page 1167. A. D. 1795.
 Macmillan, Robert, his essay on the dry rot, page 1170. A. D. 1818.
 Madagascar, agriculture of, 1115.
 Madder, its culture and management, 5350.
 Madder, culture of, in Flanders, 479.
 Madeira, agriculture of, 1121; system of cultivation, 1122; vine, 1123; wheat, 1124; live stock, 1125; fruits, 1126.
 Madness, canine, 6660.
 Magnesian limestone, theory of its operation on soils, 2227.
 Mahogany tree, Swietenia mahogani (figured), 1173.
 Mahometan states of the north of Africa, agriculture of, 1066.
 Maidenhair tree, Salisburia adiantifolia, in China, 973.
 Maize, or Indian corn, its culture, 4734.
 Maize, culture of, in the West Indies, 1197.
 Maize (figured), its culture in America, 1145.

Malacca, agriculture of, 908.
 Malignant fever in horses, 5767.
 Malignant epidemic, or murrain, in sheep, 6507.
 Mallenders and sellenders, 5836.
 Malcolm, James, his work on agriculture, page 1169. A. D. 1805.
 Malcolm, W. J. & J., their works on agriculture, page 1167. A. D. 1794.
 Maldenotti, Ignazio, his work on agriculture, page 1178. A. D. 1815.
 Mallet, Robert Xavier, his work on agriculture, page 1173. A. D. 1780.
 Maling barley, process of, 4687.
 Mammalia noxious to agriculture, 6947.
 Management of landed property,—see Landed property, management of.
 Manager of a landed estate, 4264; his duties, 4296.
 Mandioca, cassava, or manioc, Jatropha manihot, its culture in Brazil, 1212; in various countries, 1073.
 Mandrake (figured), 1057.
 Mange, 5818.
 Mango (figured), 1186.
 Mangold root, or mangold wüzel, culture of, 4922.
 Mangostan (figured), a fruit of Hindustan, 856.
 Manillas, or Philippine Islands, agriculture of, 1022.
 Manioca, Jatropha manihot, see Mandioca.
 Manna, festuca sultana, its culture in Russia, 656.
 Manna, cultivation of, in Calabria, 323.
 Manual labors of agriculture, 9876.
 Manual operations of agriculture of a mixed kind, 2946.
 Manufactories, their establishment on estates, 3567.
 Manufactures and trades in Derbyshire, enumeration of, 7014; 1st, on animal products of the country: 2d, animal substances imported: 3d, on vegetable productions of the country: 4th, on vegetable substances imported: 5th, on mineral products of the country: 6th, on mineral substances imported, 7014.
 Manure, its collection and preservation in China, 991; vegetable ashes, 992; plaister of old kilns, 993; night soil, 994; dung and urine of animals, 995; lime, 996; mixture of soils, 1000; application of manure in China, 997.
 Manures of animal and vegetable origin, their different species, 2169; green succulent plants, 2170; rape cake, 2171; malt dust, 2172; linseed cake, 2173; sea weeds, 2174; dry straw, 2175; woody fibre, 2176; inert peaty matter, 2177; tanner's spent bark, 2178; wood ashes, 2179; manures from animal substances, 2180; manures, 2181; fish, 2182; oily substances, 2183; bones, 2184; horn, 2185; hair, 2186; blood, 2188; urine, 2191; night soil, 2195; dung of fowls, 2197; dung of cattle and sheep, 2199; dung of horses, 2201; soot, 2204.
 Manures, management of, 4579; farm yard dung, 4580; lime, 4588; composts of earth, lime, and dung, 4593; meadowbank middens, 4696.
 Manures of mineral origin, 2213; theory of their operation, 2214; different species, 2217.
 Manures, to preserve, ferment, and apply, 2205.
 Manures, 2161; of animal and vegetable origin, 2162; of mineral origin, 2213.
 Manures in use in Flanders, 489.
 Manuring among the Romans, 129.
 Maps of estates, different modes of finishing, 3106.
 March, weather and agricultural operations to be performed in, page 1190.
 Marchand, Jean-Henri, his work on agriculture, page 1172. A. D. 1768.
 Mares, treatment of, during pregnancy, 5971.
 Mares and foals, treatment of, 5976; weaning the foal, 5977; gelding, 5981.
 Marian grass, or spurry, Spargula arvensis, 475.
 Marine plants used in agriculture, 5328.
 Market garden of Mellor in Derbyshire, perfection and utility of its arrangement, 7014.
 Markham, Gervase, Jervise, or Gervase, his works on agriculture, page 1162. A. D. 1593.
 Marking with the line, 2889.
 Marking plough, 2503.
 Marl, as known to the Romans, 130.
 Marl, use of, at Trentham, 7011.
 Marquesas, agriculture of, 1033.
 Marriott, William, his law book relative to agriculture, page 1167. A. D. 1795.
 Marshall, William, Esq., his works on agriculture, page 1165. A. D. 1778.
 Mascal, Leonard, his works on poultry, &c. page 1162. A. D. 1581.

- Materials, to estimate their value, 3085.
Mather, John, his work on agriculture, page 1170. A.D. 1820.
Mathieu de Dombasle, C. J. A., his work on agriculture, page 1175. A.D. 1824.
 Mattock, — see Pick.
Mauvassat, William, L.L.D., his work on agriculture, page 1167. A.D. 1794.
Mauspin, his works on agriculture, page 1173. A.D. 1779.
 Mauritius, or Isle of France, agriculture of, 1116.
 Maxims of farm management among the Romans, 157.
Maxwell, an eminent Scottish improver and writer, 784.
 May, weather and agricultural operations to be performed in, page 1192.
May, Thomas, his work on agriculture, page 1166. A.D. 1792.
Mayet, Etienne, his work on agriculture, page 1173. A.D. 1790.
 Mayo, agricultural survey of, 7096.
 Mead, brewing of, in Poland, 642.
 Meadow lands of France, 390.
 Meadow lands, management of, 5197; irrigated, 5199; upland meadows, 5200; — see Irrigation, and Pasture lands.
 Meadow hay, process of making, 5217; hay tedding machine, 5225; stacks, 5226; hay of bog meadows, to make, 5229; hay of florin, 5232.
 Meadow water, how to construct, 4104.
 Meadowbank middens, how to form, 2177.
 Meadowbank middens, 4695.
 Meadows, irrigated, 4093; flowing, 4094; catch work, 4095.
Meager, Leonard, his work on agriculture, page 1163. A.D. 1699.
 Mearns, agricultural survey of, 7065.
 Measuring chain, 2427.
 Measuring land, 3054.
 Mechanical operations common to all arts of manual labor, 2877; lifting, 2878; carrying, 2879; drawing, 2880; pushing or thrusting, 2881; wheeling, 2882.
 Medicago falcata (figured), or Swiss lucern, 5028.
 Medicines for horses and cattle, 5879.
 Megrima, 5769.
 Meikle's threshing machines, 2638; smut machine, 2648; swn separator, 2649.
 Melampyrum pratense (figured), cow wheat, 424.
 Melilotus officinalis (figured), used to scent the Gruyère cheese, 342.
 Melon, winter, its culture in France, 415.
 Mens' sleeping rooms, 2710.
Ménais, Michael, inventor of the threshing machine, 777.
 Merino sheep, history of their introduction to Britain, 769; treatment of, 6407.
 Merino or Spanish sheep, 6407.
 Merino sheep, when introduced into France, 375.
 Merion's universal drill plough and harrow, 2545.
 Mesta, or united flock of sheep; a term applied to the Merino flocks in Spain, 716.
 Metaliferous ores, 3383.
 Metayers of Lombardy, 265; of the Neapolitan territory, 313.
 Mexico, agriculture of, 1150; climate, 1150; surface, 1151; soil, 1152; floating fields, 1154; irrigation, 1157; maize, 1158; field labor, 1159; woods, 1162; breeding of animals, 1163; Mexican cochineal, 1164; fruits, 1165.
 Middle horned cattle, 6111.
 Middlemen in Ireland, 874.
 Middlesex, agricultural survey of, 6992.
Middleton, John, Esq., his works on agriculture, page 1168. A.D. 1798.
 Midlothian, agricultural survey of, 7047.
 Migration of animals, 1969.
 Mildew, a disease of plants, 1659.
 Milk, its management, 6316.
 Milk, its chemical properties and general principles, 6284.
 Milk, different preparations of, 6369.
 Milk barrow in use in Derbyshire, 7014, fig. 792.
 Milk syllabub, 6377.
 Milk tankard, 7005, fig. 778.
 Milking, and the management of milk, 6315.
 Millet, *Holcus sorghum*, its culture in China, 379.
 Millet, different kinds of, and their culture, 4721.
 Mills for raising water in Flanders, 444.
 Mills, their establishment on estates, 3561; steam mills, 3564; water mill, 3565; grist mills, 3566.
Mills, John, F.R.S., his works on agriculture, page 1164. A.D. 1759.
 Mineral kingdom, its study with reference to agriculture, 2053; earths and soils, 2064; manures, 2161.
 Mineral manures, different species of, 2917; alkaline earths, 2917; lime, 2918; burnt lime, 2919; quick lime, 2920; mild lime, 2921; effect of lime on wheat crops, 2922; general principles for applying lime, 2923; different kinds of limestone, 2925; magnesian limestone, 2927; gypsum, 2929; phosphate of lime, 2935; bone ashes, 2936; saline magnesia, 2937; wood ashes, 2938; soda, 2939.
 Mineral manures, 2913.
 Mineral manures, theory of their operations on soils and plants, 2914; saline, 2914.
 Mineral poisons, 5792.
 Minerals and mines, — see Mines.
 Mines and minerals, their establishment or working on estates, 3578; coal mines, 3580; limestone, chalk, and stone, 3584; salt, 3592; metals, 3593.
 Mining plough, 2497.
 Minnow, 6810.
 Mint, 5524.
 Mites, cheese, 6913.
 Models of estates, 3119.
 Moisture, in respect to the culture of vegetables, 1791.
 Moisture, its influence on vegetables, 1699.
 Moldavia and Wallachia, agriculture of, 738.
 Mole, to destroy, 6854.
 Mole traps, 2475.
Molesworth, Robert, Viscount, his work on agriculture, page 1164. A.D. 1723.
 Moluccas, or Spice islands, agriculture of, 1024.
 Monaghan, agricultural survey of, 7101.
Monk, John, his works on agriculture, page 1167. A.D. 1794.
 Monks of Congo, 1086.
 Monmouthshire, agricultural survey of, 7008.
Moore, Sir Jonas, Knt. F.R.S., his works on agriculture, page 1163. A.D. 1685.
 Moors, to improve, 4181.
 Moose deer, C. alces, 6622.
 Morasses and bogs, to improve, 4183.
 Morayshire, agricultural survey of, 7067.
Mordant, John, his work relative to stewards, page 1164. A.D. 1761.
Morel de Vindé, his works on agriculture, page 1174. A.D. 1807 and 1822.
 Morel, *Phallus esculentus* (figured), 1310.
 Morfoudering or catarrhal fever in horses, 5765.
Morgan, John, M.D. F.R.S., his works on agriculture, page 1164. A.D. 1768.
Morice, Francis, his work on agriculture, page 1171. A.D. 1824.
Morley, Christopher, his work on agriculture, page 1167. A.D. 1797.
Morley, John, his work on manure, page 1170. A.D. 1811.
 Morocco, agriculture of, 1072; manure and culture, 1073; live stock, 1074; nomadic cultivators, 1075.
Morogues, Baron de, his work on agriculture, page 1175. A.D. 1822.
Morlemart-Bosse, le Baron de, his work on agriculture, page 1175. A.D. 1824.
Mortimer, John, his work on agriculture, page 1163. A.D. 1707.
 Moss cutting machine of General *Dirom*, 7053.
 Mosses and bogs, to improve, 4183.
 Moths, 6894.
Moubroy, Bonnington, Esq., his treatise on poultry, page 1170. A.D. 1815.
 Mouldbaert, an implement for levelling, in use in Flanders, 501.
 Moulding sledge, 7022.
 Mountainous and hilly grounds, to improve, 4160.
 Mouse, to destroy, 6859.
 Mouse traps, 2475.
 Mouth ill, or lampas, 5777.
 Moutiers, salt works of, 370.
 Mowing, 2930; grain, 2931; grass, 2932; weeds, 2934; weeds in rivers, 2934; with the Hainalt scythe, 2936.
 Mulberry, culture of, in Tuscany, 287.
 Mulberry, its culture in Hindustan, 884.
 Mulberry, its culture in France, 408.
 Mulberry, culture of, in Germany, 550.
 Mule, among the Romans, 106.
 Mule and hinny, 6098; breeding, 6102; shoeing, 6103.
 Mules of Persia, 859.

Mummings, Rev. Thomas Crowe, his work on agriculture, page 1163. A.D. 1803.
Munro, Col. Innes, his guide to farm book-keeping, page 1170. A.D. 1822.
Murrain or pest, 5767; in sheep, 6507; in cattle, 3249.
Muscovy duck, *Anas Moschata*, 6738.
Mushroom, *Agaricus campestris* (figured), 1310.
Music, its influence on the stag, 6617.
Music, its use in fattening pigs in Mexico, 1163.
Mustard, cultivation of, in Yorkshire, 7021.
Mustard, culture of, in Hindustan, 887.
Mustard, its culture as an oil plant, 5475; for other purposes, 5479.
Mustella ferrea, the ferret, 6671.
Myoxus glis, the dormouse, 6615.
Myrrh, from what plant obtained, 1455.

N.

Nairnshire, and *Morayshire*, agricultural survey of, 7067.
Naismith, John, his works on agriculture, page 1166. A.D. 1790.
Naked disease in sheep, 6521.
Nam, Rh. Seb., his work on agriculture, page 1176. A.D. 1791.
Napier, Hon. Wm. John, F.R.S. Edin., his treatise on store farming, page 1170. A.D. 1822.
Narcotic principle, from what plants obtained, and how used, 1386.
Neat, or horned cattle, 6104.
Neck, diseases of, 5780, 5782.
Neglected plantations, to improve, 3718.
Nelumbium, its culture in China, 977.
Nests for poultry, 6679.
Netherlands, agriculture of, 422; secret of Flemish husbandry, 425; climate and surface, 427; landed property, 430; farmeries, 431; arable lands, 433; fallows, 436; polders, or embanked lands, 440; rotations, 445; crops, 453.
Neuropterous, or nerve-winged insects, 6896.
Nesae-Egliae, Louis-Joseph Bellepiere de, his works on agriculture, page 1172. A.D. 1761.
New Britain, agriculture of, 1027.
New Brunswick and *Nova Scotia*, agriculture of, 1170; Cape Breton, 1171.
New Caledonia, agriculture of, 1027.
New Forest in Hampshire, 7029.
New Hebrides, agriculture of, 1027.
New Holland, agriculture of, 1025.
New Ireland, agriculture of, 1027.
New Zealand, agriculture of, 1028.
New Zealand hemp, 1028.
Newby, Thomas, his work on the mangel wurzel, page 1170. A.D. 1813.
Newstead farm, 3861.
Nicking, docking, and cropping, in horses, 5877.
Night soil, as a manure, 2195.
Nilghau, or white-footed antelope, 6628.
Norfolk, agricultural survey of, 7003.
Norfolk cart and wagon, 2623.
Norfolk wheel plough, 2516.
Norfolk horse rake, 2593.
Norfolk drill roller, 2584.
Norfolk corn drill, 2553.
Noria, or bucket wheel of Spain (figured), 723.
Noria of the Alps (figured), 368.
Norland, or North Highland, cattle, 6122.
Norman clergy great agriculturists, 205.
North, Richard, his work on agriculture, page 1164. A.D. 1760.
North, Roger, his history of esculent fish, &c., page 1167. A.D. 1794.
North America, agriculture of, 1127; climate, 1127; surface, 1128; general character, 1129; United States, 1130; Mexico, 1150; British possessions, 1166; West India islands, 1172.
North Riding of Yorkshire, agricultural survey of, 7021.
Northamptonshire, agricultural survey of, 7018.
Northumberland turnip drill, 2555; one-row drill, 2557.
Northumberland horse hoe, 2541.
Northumberland, agricultural survey of, 7024.
Nottinghamshire, agricultural survey of, 7015.
Notta, or hornless sheep, 6294.
Nova Scotia, agriculture of, 1170.
November, weather and agricultural operations to be performed in, page 1195.
Nubia, agriculture of, 1065.
Nutmeg tree, culture of, in the Spice islands, 1024.

Nutrition of vegetables, 1511; see Vegetable nutrition.

O.

Oak of China, 972.
Oak tree, *Phoenix dactylifera*, culture of, in Persia, 855.
Oat, culture of, 4694; species and varieties, 4635; soil, 4706; sowing, 4709; harvesting, 4713; kiln-drying oats in Russia, 4714; use, 4718.
Oboca, or eating dirt, a practice among West India slaves, 1193.
Obstetrics in cattle, 6275.
Occupation of land in Savoy, 350.
October, weather and agricultural operations to be performed in, page 1195.
Oil of almonds, its manufacture, 1411; .
Oil of poppy, its uses, 1417.
Oil mills of the Chinese (figured), 967, 968, 969.
Oil plants, 5458.
Oil plants of Hindustan, 887.
Ointments used for horses, cattle, sheep, &c., by veterinary practitioners, 5921.
Olea europaea (figured), the olive, 731.
Olive, its culture in France, 410.
Olive, its culture in Spain, 706.
Olive, culture of, in Tuscany, 289.
Olive oil, how manufactured, 1410.
Olives, 731; almonds and carobs, 733; forests, 736.
Olivier, G. A., his work on agriculture, page 1174. A.D. 1792.
Onorati, Nicola Columella, his works on agriculture, page 1178. A.D. 1816.
Operating with the cultivator, grubber, &c., 3019.
Operations of agriculture, 2875; manual labor and operations, 2876; operations with laboring cattle, 2892; scientific operations, 3052.
Ophthalmia, 5771.
Orange and pomegranate in Spain, 710.
Orange, its culture in France, 414.
Orange in Persia, 856.
Orchard attached to the farmery, 2755.
Orchards, their formation and management, 3770; soils and situations, 3771; sorts of trees, 3776; manner of planting, 3793; cultivation of farm orchards, 3797; gathering and keeping of orchard fruits, 3807.
Orchards of Clydesdale, 7056.
Orchards of Herefordshire, 7009.
Orchards of Gloucestershire, 7006.
Orchards of Roxburghshire, 7007.
Orchards of Worcestershire, 7050.
Orchis, or Salep plant, 5526.
Orkney and Zetland cattle, 6123.
Ornamental cottages, 2734.
Orobancha major (figured), broom rape, a noxious weed in the clover grounds of Flanders, 461.
Osier grounds, their management, 3738.
Otaheite, agriculture of, 1035; soil, 1036; produce, 1037; live stock, 1038.
Over-reach, or treads on the feet of horses, 5889.
Ovis strepsiceros (figured), the Hungarian sheep, 619.
Owen, Rev. T. M. A., his work on agriculture, page 1168. A.D. 1800.
Ox or bull family, 6105; varieties, 6106; criteria of qualities in the bull family, 6135.
Ox of Hindustan, 899.
Ox of Thibet, *Bos grunniens*, 869.
Oxen of Abyssinia, 1043.
Oxen of the Romans, 100.
Oxen as laboring cattle, 4464.
Oxen, shoeing of, 6219.
Oxen, working of, 6125.
Oxfordshire, agricultural survey of, 7004.
Oxygen as a constituent part of the atmosphere, 2274.
Oyster fisheries, 3604.
Oysters, breeding and rearing of, near Naples, 325.

P.

Paillet, —, his work on agriculture, page 1173. A.D. 1791.
Pails, 2439.
Paling fences, 2815.
Palladius, R. T. E., his work on agriculture, 51.
Pallat, T., his work on agriculture, page 1168. A.D. 1799.

- Palmyra**, its culture and application in Hindustan, 893.
- Paltas**, Guillaume Louis Formanoir de, his work on agriculture, page 1168. A.D. 1768.
- Pan**, a term applied to the bed or flooring upon which the cultivated soil lies or is placed. Mr. Marshall, in speaking of the Norfolk soils, remarks, that "immediately under the cultivated soil, a hard crust, provincially 'the pan,' occurs universally. And under this an unfathomable ocean of sand may be considered as the prevailing substratum. In some places a hungry gravel, but more frequently an absorbent brick earth is the immediate subsoil."
- Pane**, in irrigation, 4083.
- Panicum miliaceum** (figured), or cultivated millet, its culture, 4794.
- Panicum germanicum** (figured), or German millet, its culture, 4723.
- Panicum italicum** (figured), or Italian millet, its culture, 4725.
- Papaver**, or poppy, culture of, in Flanders, 460.
- Papua**, or New Guinea, agriculture of, 1206.
- Paraguay**, agriculture of, 1306.
- Paring and burning**, mode of performing the operation, 2971; implements, 2973; fenny districts, 2974; western counties, 2975; season, 2976; depth, 2977; spreading the ashes, 2979.
- Paring and burning soils**, theory of, 2134.
- Paring wheel-plough**, 2517.
- Park fences**, 2829.
- Parkinson's cultivator**, 2535.
- Parkinson**, Richard, his works on agriculture, page 1168. A.D. 1799.
- Parmentier**, Antoine Augustin, his works on agriculture, page 1173. A.D. 1781.
- Parmentier**, Deyeux, and others, their work on agriculture, page 1168. A.D. 1782.
- Parmesan cheese**, how made in Lombardy, 270.
- Perry**, Caleb Hillier, M.D. F.R.S., his work on agriculture, page 1168. A.D. 1800.
- Parsley field**, culture of, 5081.
- Parus**, culture of, 4951.
- Parus**, culture of, in Jersey, 7041.
- Parted cast-iron roller**, 2580.
- Partridge**, 6786; quail, 6787; red grouse, 6788; black grouse, 6789; lark, 6791.
- Partridge**, Tetrao perdix, 6785.
- Pastures**, their management, 5239; feeding pastures, 5240; weeding, 5242; harrowing, 5243; removing ant and mole hills, 5244; manuring, 5245; teathing, 5246; stocking, 5247; fogging, 5255; water, 5255; salt, 5255.
- Pastures of Hindustan**, 897.
- Pastures**, their improvement by tillage, 5261; rotation of crops, 5279.
- Pastures**, mountainous, their management, 5257.
- Pasturing** corn among the Romans, 140.
- Patagonia**, agriculture of, 1219.
- Patin**, Charles, his work on agriculture, page 1171. A.D. 1853.
- Pattens for horses**, 5939.
- Paved roads**, 3439.
- Pavements of Arbroath**, 7064.
- Pea**, its culture, 4739; varieties, 4740; soil, 4745; sowing, 4747; harvesting, 4752; produce, 4755; use, 4759.
- Pescok**, Pavo cristatus, 6731.
- Pearce**, William, his work on agriculture, page 1167. A.D. 1794.
- Pears** suitable for orchards, 3782. 3784.
- Pearson**, George, M.D. F.R.S., his work on agriculture, page 1169. A.D. 1805.
- Peasantry of Ireland**, 830.
- Peat**, how to convert to manure, 2177.
- Peat mosses** or bogs of Ireland, 807.
- Peat mosses**, bogs, and morasses, to improve, 4183.
- Peaty soils**, how formed, 3062.
- Peckshire**, or Tweeddale, agricultural survey of, 7052.
- Pelew isles**, agriculture of, 1030.
- Pelt rot** in sheep, 6521.
- Pendro**, a disease in sheep, 6594.
- Penguin**, or wild pine apple, Bromelia penguin, a hedge plant of the West Indies, 1196.
- Pepper plant**, Piper nigrum (figured), its culture and application in Sumatra, 1014; white pepper, how prepared in Sumatra, 1015.
- Perch**, 6806.
- Peripneumonia**, or inflamed lungs in sheep, 6508.
- Persia**, agriculture of, 850; surface, 851; soil, 852; landed property, 853; agricultural products, 854; fruits, 855; saline deserts, 857; live stock, 858; mules, 859; quail hunting, 860; implements and operations, 861; pigeons, 862; arable culture, 863; forests, 864.
- Perspiration of plants**, 1537.
- Perthshire**, agricultural survey of, 7063.
- Peru**, agriculture of, 1903.
- Pest or murrain in horses**, 5767.
- Peters**, Matthew, his works on agriculture, page 1165. A.D. 1770.
- Peyrouse**, Baron Picot de la, his work on agriculture, page 1175. A.D. 1819.
- Pharmacopœia** in horses and cattle, 5879.
- Pheasant**, Phasianus colchicus, 6779; varieties, 6780; breeding, 6781; stocking, 6782; feeding, 6784; fancy pheasants, 6785.
- Phillips**, Robert, his work on roads, page 1164. A.D. 1757.
- Phenicia**, its agriculture, 37.
- Phrenitis**, or inflammation of the brain in horses, 5760.
- Physicking of horses**, 5874; process, 5876.
- Physiology and anatomy of the bull family**, 6227.
- Physiology and anatomy of the sheep**, 6497.
- Physiology of insects**, 6863; eggs, 6864; caterpillars, 6866; chrysalis or pupa state, 6867; sexes, 6868; duration, 6869; scientific arrangement, 6870.
- Phytography**, or the naming and describing of plants, 1263.
- Piacenza**, Giovanni, his work on agriculture, page 1177. A.D. 1805.
- Pick or mattock**, 2375.
- Picking**, 2886.
- Pictet**, Charles, his works on agriculture, page 1174. A.D. 1802.
- Piers** to guard river banks, their construction, 4040.
- Pigeon**, Columba, 6764; variety, 6765; stocking, 6767; breeding, 6768; food, 6770; salt, 6771; cleanliness, 6772; pigeon houses, 6773; diseases of pigeons, 6777; laws respecting pigeons, 6778.
- Pigeon houses of Persia**, 862.
- Pigeon dung**, its importance in Persia, 862.
- Pigeon houses**, 6773.
- Pigeonry**, 2686.
- Pigs of the Cape of Good Hope**, 1105.
- Pike**, 6806.
- Picharda**, use of, as manure in Cornwall, 7039.
- Pichard fishery**, 3602.
- Pincers**, or thistle drawers, 2394.
- Pine woods** in Inverness-shire, 7071.
- Pining** in sheep, 6517.
- Pinus pines** (figured), its seeds eaten in Italy, 395.
- Pitch and tar**, from what plants obtained, and how manufactured and used, 1429.
- Pithing** animals described, and physiologically considered, 9047.
- Pitt**, William, his works on agriculture, page 1167. A.D. 1794.
- Plague**, a disease of hogs in Poland, 642.
- Plaster of Paris**; — see Gypsum.
- Plans**, different modes of finishing, 3106.
- Plant louse**, Aphis, 6894.
- Plantain**, Musa sapientum (figured), 1027.
- Plantain**, Musa paradisiaca, culture of, in the West Indies, 1193.
- Plantain or rib wort**, culture of, 5070.
- Plantations**, 3627; soils and situations for trees, 3631; trees, 3638; formation, 3642; enclosing, 3643; planting and sowing, 3645; mixture of sorts, 3669; culture of the soil, 3679; filling up blanks, 3683; pruning and heading down trees, 3687; thinning, 3709; neglected plantations, 3718; diseased trees, 3794; products of trees, 3734; felling and cutting, 3739; barking, 3745; valuing trees, 3763.
- Plantations in North Wales**, 7044.
- Planting**, 2906; seeds and tubers, 2907; plants, 2908; preparation, 2909; insertion, 2910.
- Planting trees**, different methods of, 3659.
- Plants**, their products; — see Vegetable products.
- Plants grown for medicinal purposes**, 5510; saffron, 5511; liquorice, 5516; rhubarb, 5518; lavender, 5521; thyme, wormwood, &c., 5522; chamomile, 5523; mint, 5524; valerian, 5525; salep or orchis, 5526.
- Plants grown for their produce in oil**, 5458; rape, 5459; mustard, 5475; poppy, 5476; sunflower, 5477.
- Plants cultivated for their roots or leaves**, 4823; their nutritive products, 4894.
- Plants cultivated for the arts and manufactures**, 5290; for the clothing arts, 5291; brewery and distillery, 5292.

- Plants used in the brewery and distillery, their culture, 5392; the hop, 5393.
 Plants, their systematic distribution, 1740.
 Plants, study of, 1284; — see Vegetable kingdom.
 Plants, their food, 1495; water, 1496; gases, 1497; extract, 1502; salts, 1504; earths, 1505; carbon, 1510.
 Plants used in domestic economy, 5478; mustard, 5479; canary grass, 5485; buckwheat, 5499; cress, 5501; chicory, 5503; tobacco, 5505.
 Plants used in the clothing arts, 5291; substitutes for, 5389.
Plattes, Gabriel, his works on agriculture, page 1162. A.D. 1638.
 Plough of Arcadia, 731.
 Plough of Tonquin, 945.
 Plough of Yemen, 872.
 Plough of Hindustan, 906.
 Plough of the Romans, 110; wheel ploughs, 113.
 Plough of Osterbothnia, 682.
 Plough of Erzerum, 861.
 Plough of the Samnites, 682; of the ancient Egyptians, 10. 682.
 Plough of Castile, 723; of Valentia, 111.
 Plough of Virgil, 112.
 Plough, Small's, or Scotch (figured), 770.
 Plough of Ceylon, 917.
 Ploughing, 2998; general principles and rules, 2999; kinds of, 3002; relatively to time, 3016; season, 3018.
 Ploughing grass lands, 5261; rotation of crops, 5279.
 Ploughing among the Romans, 127.
 Ploughing in Roxburghshire, 7050.
 Ploughing match at Trentham, 7011.
 Ploughman, Roman, his qualities, 88.
 Ploughman's lodge or bothy, 2709, 2710.
 Ploughmen of Mid-Lothian, their dress and diet, 7047.
 Ploughs with wheels; — see Wheel ploughs.
 Ploughs of China, 987.
 Ploughs, swing, their construction, 2481; by Bailey, 2482; by Small, by Vetch, 2482; other kinds, 2491; Somerville plough, 2492; turn-wrest swing plough, 2493; Duckett's skim coulter plough, 2494; double share plough, 2496; trenching plough, 2497; double furrow plough, 2498; Argyleshire plough, 2499; double mould-board plough, 2500; ribbing plough, 2501; single hoe plough, 2502; marking plough, 2503; Finlayson's rid plough, 2504; Clymer's plough, 2505.
Pling, C. Secundus, his natural history, 49.
 Plum, winesour variety, 7020.
 Plums suitable for orchards, 3787.
 Pneumonia, or inflammation of the lungs, 5786.
 Poison tree of Java, 936.
 Poisons, mineral, 5792.
 Poisons, vegetable, 5794.
 Poland, present state of agriculture in, 628; landed property, 629; post-houses and farms, 630; villages, 630; climate, 631; surface, 632; arable culture, 633; implements and operations, 634; live stock, 635; forests, 636; bees, 637; brewing mead, 642.
 Polecat, to destroy, 6851.
 Pole evil, 5773.
Polignac, Comte Charles de, his work on agriculture, page 1175. A.D. 1822.
 Polled, or hornless cattle, 6115.
Polonceau, M., his work on agriculture, page 1175. A.D. 1824.
 Polynesian Islands, agriculture of, 1012.
 Polytrichum commune (figured), one of the most universal of vegetables, 1746.
Pomeroy, William Thomas, his work on agriculture, page 1167. A.D. 1794.
 Pond, in irrigation, 4088.
 Ponds, to construct, 4130; ponds of Gloucestershire, 4136; Derbyshire artificial meads, 4137.
Ponsey, William, his works on trees, page 1168. A.D. 1800.
 Poor, education of, in Devonshire, 7038.
 Poppy, its culture as an oil plant, 5476.
 Poppy, its culture in Hindustan, 885.
 Poppy oil, its uses, 1417.
 Pork and bacon, to cure, 6576.
 Porpoise, the enemy of the salmon, 3613.
Porta, J. B., his work on agriculture, page 1175. A.D. 1592.
 Portable or hand-threshing machine, 2453.
 Portugal, agriculture of, 728.
 Pot tree of Brazil, *Leceythis ollaria*, 1210.
 Potatoe, its culture, 4825; history, 4826; varieties, 4832; soil, 4832; planting, 4843; taking the crop, 4856; storing, 4859; produce, 4864; application, 4867; diseases, 4874.
 Potatoe, culture of, in Lancashire, 7027.
 Potatoe in Hindustan, 881.
 Potatoe, culture of, in Flanders, 465.
 Potatoe dibber, 2397.
 Potatoe setscopps, 2417; Edinburgh setscop, 2418.
 Potatoe drill, 2469.
 Potatoes in Durham, 7023.
 Potatoes, their first introduction to England, 1565.
 Potatoes, culture of, in Ireland, 826.
 Poultices in veterinary surgery, 5867.
 Poultry houses, 2682.
 Poultry houses of Lord Penrhyn, 7028.
 Poultry houses, their furniture and utensils, 673.
 Poultry, gallinaceous, 6680; anserine or aquatic, 6732; diseases of, 6757.
 Poultry yard, 2752.
 Poultry yard of the Earl of Chesterfield in Derbyshire, 7014.
 Pounding limestone, 3291.
Preauveau Chemilly, Eugene, his work on agriculture, page 1174. A.D. 1794.
Préfontaine, —, his work on agriculture, page 1172. A.D. 1763.
 Preservation of vegetables, principles of, 1797.
 Pressing plough or roller, 2515. 2585.
Prevost, Benedict, his work on agriculture, page 1174. A.D. 1807.
 Price, John, his treatise on sheep, page 1168. A.D. 1809.
 Pricks in the feet of horses, 5857.
Pringle, A., his work on agriculture, page 1167. A.D. 1794.
 Pristly water meadow described, 4107.
 Products of plants; — see Vegetable products.
 Profits of farming among the Romans, 166.
 Profuse stalling, or diabetes, 5816.
 Pronged tillage implements, 2527; their merits, 2528.
 Propagation of plants; — see Vegetables, their propagation.
 Pruning knives of Java, 935.
 Pruning of hedges, 3705.
 Pruning, 2916; objects of, 2923; growth, 2924; lessening bulk, 2925; modifying, 2926; adjusting, 2927; renewal, 2928; curing diseases, 2929.
 Prussia, agriculture of, 563; institution of Moegelin, 565; farm of Moegelin, 572; sheep, 574; cows, 576; ploughs, 577; threshing machines, 578; culture of the vine, 579.
 Puceron or aphs, 6684.
 Puckeridge, or worms in cattle, 6274.
 Pumiced foot, 5852.
 Pumpkins, or vegetable marrow of Cochinchina (figured), 944.
 Pumps, kinds of, 4154.
 Purgative medicines used in veterinary practice, 5915.

Q.

- Quail, Tetras, 6787; grouse, red, 6788; black, 6789; cock of the wood, 6790.
 Quail, hunting of, in Persia, 860.
 Quails of Tonquin (figured), 945.
 Quarries, their establishment or working, 3367.
 Quassia, or bitter of porter, 1217; cabbage tree beetle, 1217.
Quayle, Basil, his work on agriculture, page 1167. A.D. 1794.
 Queen's county, agricultural survey of, 7082.
Quercus suber (figured), the cork tree, treatment of in Spain, 728.
 Quittor and canker in the feet of horses, 5833.

R.

- Rabbit, 6591; warrens, 6593; tame rabbits, 6600; rabbit house and hutches, 6601; varieties of tame rabbits, 6603; breeding, feeding, &c., 6604.
 Rabbitry, 2685.
 Racing shoe for horses, 5934.
 Rack and manger for colts in use in Leicestershire, 7013; in Derbyshire, 7014.
Radcliff, Rev. T., his work on agriculture, page 1174. A.D. 1819.
 Rail roads, 3469.
 Rain, theory of, 2300; phenomena, 2301; cause, 2302; quantity, 2303.
 Rain water, to collect, 4193.

- Rakes**, 2380; hay rake, 2381; corn rake, 2382; stubble rake, 2384; daisy rake, 2385; drill rake, 2386.
- Raking** by manual labor, 2896.
- Raking** with horses, 3030.
- Raley**, William, his work on agriculture, page 1166. A. D. 1783.
- Rammed earth**, or *en pisé* walls, 2848.
- Randall**, J., his works on agriculture, page 1164. A. D. 1764.
- Rapacity** of animals, its influence on their distribution, 1980.
- Rape**, culture of, in Flanders, 457.
- Rat**, domestic, to destroy, 6855; field rat, 6859.
- Rat traps**, 3475.
- Rauch**, F. A., his work on agriculture, page 1174. A. D. 1802.
- Rawson**, Thomas James, Esq., his work on agriculture, page 1169. A. D. 1817.
- Ray**, or rubbers in sheep, 6222.
- Re**, Filippo, his works on agriculture, page 1177. A. D. 1808.
- Reaping**, 2837; bagging, 2938; shaving and stacking, 2939; gaiting, 2940; pulling, 2944.
- Reaping** among the Romans, 132.
- Reaping** hooks, 2406; Hutton's hook, 2407.
- Reaping** machine of the Romans, 133.
- Reaping** machines, history of, 2959; Boyce's machine, 2900; Plucknet's, 2901; Gladstone's, 2902; Salmon's, 2903; Smith's, 2904; clover pods reaping machine, 2905; clover mowing machine, 2906.
- Rearing** animals, principles of, 2020.
- Rearing** of horned cattle, 6152.
- Reaumur**, René Antoine Ferchault, sieur de, his work on agriculture, page 1171. A. D. 1749.
- Red clover**, culture of, in Flanders, 463.
- Red water**, or inflammation of the kidneys in cattle, 6262.
- Red water** in sheep, 6504.
- Redolfi**, Cosimo, his work on agriculture, page 1178. A. D. 1818.
- Reed**, mode of thatching with, 2953.
- Reeve**, Gabriel, his work on agriculture, page 1163. A. D. 1670.
- Rein** deer moss (figured), 675.
- Rein** deer, C. tarandus, 6623.
- Rennet**, its kinds and uses, 6337.
- Rennet** of Dutch cheese, 6340.
- Rennet**, George, Esq., his work on agriculture, page 1167. A. D. 1794.
- Rent** of land in Ireland, 813.
- Renton**, George, his work on agriculture, page 1168. A. D. 1801.
- Reports** on improvements or valuations, 3121.
- Reproductive** system of animals, 1936.
- Resinous** trees, season of pruning, 3695.
- Resins**, what, from what plants obtained, and how used, 1427; rosin, 1428; pitch and tar, 1429; mastick, 1430; sandarach, 1431; elemi, 1432; tacamahac, 1433; labdanum, 1434; opobalsamum, or balm of Gilead, 1435; copalva, 1436; dragon's blood, 1437; guaiac, 1438; Botany Bay resin, 1439; green resin, 1440; copal, 1441; animé, 1442; lac, 1443; bloom, 1444; use of resins, 1445; gum resins, 1446.
- Retiring** houses of China, 999.
- Rhomboidal** barrow, 2571.
- Rhubarb**, 5518.
- Ribwort** plantain, culture of, 5070.
- Ricci**, Jacopo, his works on agriculture, page 1178. A. D. 1816.
- Rice**, its culture, 4735.
- Rice**, culture of, in Egypt, 1062.
- Rice** in Hindustan, 881.
- Richards**, John, his work on stewards and tenants, page 1164. A. D. 1730.
- Rickier**, K. F., his work on agriculture, page 1176. A. D. 1804.
- Ricinus communis** (figured), the castor oil plant, 849; cultivated by the Chinese, 970.
- Rick** yard, 2744.
- Ridging**, 2891.
- Rien**, his work on agriculture, page 1172. A. D. 1770.
- Rien**, J., his work on agriculture, page 1176. A. D. 1792.
- Rigaud**, de l' Isle, his work on agriculture, page 1172. A. D. 1769.
- Rigby**, Edward, M.D. F.L.S., his work on agriculture, page 1170. A. D. 1820.
- Ring** bone, 5840.
- Ringsted**, Josiah, Esq., his works on agriculture, page 1165. A. D. 1774.
- Rippling**, 2966.
- Rising** of the lights in sheep, 6508.
- Rivers**, to change their course, 4045.
- Rivers**, guarding of their banks, 4038.
- Rizhaub**, his work on agriculture, page 1176. A. D. 1786.
- Road**, one on an inclined plane near Warrington, 7027.
- Roads**, concave, in Derbyshire, 7014.
- Roads** of Sutherland, 7070.
- Roads**, their different kinds, 3286; national or highways, 3287; parochial, 3288; lanes, 3289; estate roads, 3290; farm roads, 3291; horse roads, 3292; foot paths, 3293; railroads, 3294; paved roads, 3295; plank roads, 3296; approach roads, 3297.
- Roads**, their formation, 3280; kinds, 3286; direction, or laying out of roads, 3299; form and materials, 3317; wear or injury of roads, 3318; M'Adam's theory, 3333; paved roads, 3439; railroads, 3459; preservation and repair, 3473.
- Roads**, origin of their improvement in Scotland, 750.
- Roads** of Java, 937.
- Roaring**, or pneumonia, 5787.
- Robertson**, James, D. D., his work on agriculture, page 1168. A. D. 1798.
- Robertson**, Rev. George, his work on agriculture, page 1167. A. D. 1795.
- Robson**, James, his work on agriculture, page 1167. A. D. 1794.
- Rocca**, Abbé Della, his work on bees, page 1177. A. D. 1790.
- Rocks**, how converted into soils, 3061.
- Rocky** surfaces, to improve, 4163.
- Rocque**, Bartholomew, his works on agriculture, page 1164. A. D. 1761.
- Roe** deer, C. capreolus, 6618.
- Rollers**, 2578; common, 2579; parted cast iron roller, 2580; spiky, 2581; roller and water box, 2582; furrow roller, 2583; Norfolk drilling roller, 2584; pressing plough or roller, 2585.
- Rolling**, 3028; grass lands, 3029.
- Roman** agriculture, profits of, 166.
- Roman** agricultural writers, 44.
- Roman** agriculture as a science, 170; its extent in other countries, 174; in Germany, 175; in Britain, 176; its decline, 178.
- Roman** farmers, 60.
- Roman** plough, 110.
- Roman** ploughmen, their qualities, 88.
- Roman** servants, 88; their wages, 89; their food, 91.
- Romans**, landed property among, 53.
- Romans**, their agriculture, 42.
- Romans**, their villas, 75.
- Romans**, their maxims of farm management, 157.
- Romans**, their farms and farmeries, 72.
- Romans**, their farm management, 71.
- Romans**, their agricultural implements, 109.
- Romans**, their agricultural operations, 126; ploughing, 127; fallowing, 128; manuring, 129; sowing, 131; reaping, 132; threshing, 135; hay making, 138; weeding, 139; harrowing, 140; watering, 141.
- Romans**, their agricultural animals, 93; bulls, 95; cows, 96; oxen, 101; asses, 105; mules, 106; horses, 107; dog, 108; sheep, 108.
- Romans**, their beasts of labor, 93.
- Rosconi**, Ignazio, his work on agriculture, page 1177. A. D. 1804.
- Rood's** convertible waggon, 2624.
- Root** breaker or bruiser, 2474.
- Root** house, 2704.
- Rope** twister, 2396.
- Rope** twisting machine, 2457.
- Rope** twisting, 2947.
- Roscommon**, agricultural survey of, 7094.
- Rosin**, from what plants obtained, and how manufactured and used, 1428.
- Ross**, Nairn, and Cromarty, agricultural survey of the shires of, 7068.
- Rossig**, Karl Glo, his work on agriculture, page 1176. A. D. 1781.
- Rossore**, agricultural establishment of, in Tuscany, 297.
- Rot** in sheep, 6502. 6518.
- Rotation** of crops, theory of its beneficial effects, 2154; by Sir H. Davy, 2155; by Yvart and Pictet, 2158; influence in destroying insects by Olivier, 2160.
- Rotation** of crops in Saxony, 599.
- Rotations** of crops in Lombardy, 272; in Tuscany, 282.

- Rotations of crops, 4549; see Crops.
 Rotations of crops in Flanders, 445.
 Rotations of crops in Spain, 712.
 Roughley, Thomas, his work on agriculture, page 1172. A. D. 1823.
 Row culture of China, 1002.
 Rowels, 5889.
 Roxburghshire, agricultural survey of, 7050.
 Rowley, Francois, his work on agriculture, page 1172. A. D. 1772.
 Rubbers or ray in sheep, 6552.
 Rubus chamaemorus (figured), cloudberry, 690.
 Ruchert, G. Ch. Alb., his work on agriculture, page 1176. A. D. 1800.
 Rudge, Rev. Thomas, B.D., his work on agriculture, page 1169. A. D. 1807.
 Running thrush in the feet of horses, 5855.
 Runners of plants, to propagate by, 1617.
 Russia, agriculture of, 645; climate, 647; landed property, 653; farmhouses, 654; villages, 654; agricultural products, 655; fruits, 659; live stock, 660; forests, 661; implements and operations, 662.
 Rutlandshire, agricultural survey of, 7017.
 Rye, culture of, 4650.
 Rye, culture of, in Flanders, 455.
 Rye, George, his work on agriculture, page 1164. A. D. 1780.
- 8
- Sack barrow, 9450.
 Saffron, 5511.
 St. Helena, agriculture of, 1118.
 Saintfoin, culture of, 5042; soil, 5044; sowing, 5047; taking the crop, 5052; produce, 5055.
 Salisbury, W., his work on agriculture, page 1170. A. D. 1822.
 Salvation in horses, 5793.
 Salmon, natural history of, by Headrick, 7064.
 Salmon, 6811.
 Salmon fishery, 3605.
 Salmon fishery of the Tyne, 7023; of the Tweed, 7024.
 Salmon, William, M.D., his work on agriculture, page 1163. A. D. 1723.
 Salop, from what plants obtained and how manufactured, 1375.
 Salt, use of, in Cornwall, 7039.
 Salt mines of Cheshire, 7028.
 Salt works of Droitwich, 7007.
 Salt mines, 3592.
 Salt works of Moutiers, 370.
 Salting hay, 5233.
 Salts, as ingredients of vegetable food, 1504.
 Salvioli, Gio., his work on agriculture, page 1177. A. D. 1168.
 Samniti plough, 692.
 Sampson, Rev. G. Vaughan, his work on agriculture, page 1168. A. D. 1802.
 Sand cracks in the feet of horses, 5856.
 Sandwich Isles, agriculture of, 1034.
 Sap, ascent of, in plants, 1513.
 Sap of plants, what, and how obtained, 1469.
 Sarcey, de Sutures, his works on agriculture, page 1172. A. D. 1765.
 Sark, agricultural survey of, 7040.
 Savoy, agriculture of, 347.
 Savoy, peasantry of, 350; occupation of land, 352; leases, 357; pasturage, 358; public dairies, 359; vineyards, 361; walnut trees, 362; tobacco, 366; salt works of Moutiers, 370.
 Saw fly, 6902.
 Sawing, 2914.
 Saxony, agriculture of, 596; culture of the vine and silkworm, 597; sheep, 598; rotation of crops, 599; cows, 600.
 Scab in sheep, 6522.
 Scalding mixture for the pole-evil in horses, 5917.
 Scarifiers, 2527.
 Schaffeld, L., his work on agriculture, page 1176. A. D. 1808.
 Schonleutner, M., his work on agriculture, page 1176. A. D. 1810.
 Scientific operations required of the agriculturist, 3056.
 Seirpus tuberosus (figured), its culture in China, 978.
 Scotch farmers in Wiltshire, 7032.
 Scotch or Small's plough (figured), 770.
 Scotch cart (figured), 770.
 Scotch plough with two wheels, 2507; with one wheel, 2508.
 Scotch scarifier, cultivator or grubber, 2533.
 Scotch horse hoe, 2540.
 Scotland, agriculture in, during the sixteenth century, 296, 941.
 Scotland, agriculture of, from the eleventh to the thirteenth century, 208.
 Scots grass, *Panicum hirtellum* (figured), 1186.
 Scott, W., his law book relative to agriculture, page 1168. A. D. 1801.
 Scott, Edmund, his work on agriculture, page 1168. A. D. 1801.
 Scour in sheep, 6515.
 Scouring in sheep, 6516.
 Scouring or diarrhoea in horned cattle, 6996.
 Scraper, 2392.
 Scraping, 2997.
 Screening or sifting, 2899.
 Scuttle, the name of a shallow basket or sort of wicker bowl much used in the barn and for other purposes. The large ones have handles, but the small ones are without them.
 Scythe, Hainault, or Flanderv, 502.
 Scythe, Brabant, 503.
 Scythe, cradle, of France, 336.
 Scythes, 2403; Hainault scythe, 2404; cradle scythe, 2405.
 Sea-weed eaten in Cochín China, 944.
 Sea-weed, or kelp, its growth and manufacture, 5529.
 Sea-weeds, theory of their operation as a manure, 2174.
 Sebright, Sir J. S., his theory of improving the breed of animals, 1995.
 Seed basket, 9457.
 Seed, its impregnation, 1592; hybrids, 1396; crossing, 1599.
 Seeds of plants, their germination, 1486; physical phenomena, 1493; chemical phenomena, 1494.
 Selkirkshire, agricultural survey of, 7051.
 Sellers and mallenders, 5836.
 September, weather, and agricultural operations to be performed in, page 1194.
 Servants, their management, 4522.
 Servants of the Romans, 85; their wages, 89; food, 91.
 Servieres, R. de, his work on agriculture, page 1173. A. D. 1786.
 Sesamum orientale, cultivated by the Chinese, 970.
 Sesamum orientale (figured), cultivated as an oil plant by the Romans, 150.
 Setons, 5863.
 Shab or scab in sheep, 6522.
 Shaddocks of Madeira (figured), 1195.
 Shear hog, a wedder lamb in his second year, 6413.
 Shearing of sheep, 6436.
 Sheep, 6381; varieties, 6384; criteria, 6410; breeding, 6414; rearing, 6429; folding, 6468; fattening, 6478; merinos, 6489; anatomy and physiology of sheep, 6497; diseases, 6501.
 Sheep of North Wales, 7044.
 Sheep, Wiltshire, 7032; of Dorsetshire, 7033.
 Sheep, how treated in France, 391.
 Sheep of Hindustan, 900.
 Sheep of the Cape of Good Hope, 1101.
 Sheep (merino) of Spain, their management, 714.
 Sheep tax, 6913.
 Shifts, such parts of a farm as are allotted for the reception of either stock or crops. It is also a term applied to the rotations of cropping lands; thus, we have three, four, five and six coarse shifts, 4549.
 Shierck, John, his works on agriculture, page 1174. A. D. 1814.
 Ship timber, how to produce bends for, 3700.
 Shoe, improved form of, for horses, 5936; bar shoe, 5932; hunting shoe, 5933; racing shoe, 5934; grass shoe, 5935; frost shoe, 5936; calkins, 5937; horse patterns, 5938.
 Shoeing and shoes for horses, various methods and kinds, 3925.
 Shoeing of oxen, 6219.
 Shoeing of horses, 5925; improved mode, 5926; various modes, 5927, 5932.
 Short horned or Dutch cattle, 6103.
 Shoulder strains in horses, 5928.
 Shovel, 2377.
 Shovelling, 2888.
 Shropshire, agricultural survey of, 7010.
 Siam, agriculture of, 939.

- Sickler**, F. Ch. L., his work on agriculture, page 1176. A. D. 1805.
- Siddow** pease, *i. e.* such as boil freely, 7006.
- Sidra** Hall farm, 3855.
- Sierra Leone** (mountains of the lions), agriculture of, 1079.
- Stevens**, 2434.
- Steuer**, his works on agriculture, page 1172. A. D. 1769.
- Sifting** or screening, 5893.
- Silk** worm or moth, 6822; treatment of the mulberry, 6824; produce of the worms, 6825; culture of silk in England, 6826.
- Silk** worms in China, 985.
- Silk** worm, culture of in Austria, 617.
- Silk** worm, its culture in Hindustan, 884.
- Silk** worm, its culture in Spain, 709.
- Simonde**, J. C. L., his work on agriculture, page 1177. A. D. 1801.
- Simpson**, Pindar, his treatise on the mangel-wurzel, page 1170. A. D. 1815.
- Sinclair**, G., F.L.S., F.H.S., his work on agriculture, page 1171. A. D. 1824.
- Sinclair**, Rt. Hon. Sir John, Bart., LL.D., M.P., his works on agriculture, page 1166. A. D. 1790.
- Sinety**, André Louis, Esprit, his work on agriculture, page 1174. A. D. 1803.
- Singer**, Rev. William, D.D., his work on agriculture, page 1170. A. D. 1812.
- Singing** birds, 6792; breeding and rearing, 6794; aviary, 6795.
- Single** hoe plough, 2502.
- Skeleton** of the sheep, 6498.
- Skim** milk, 6378.
- Skin**, diseases of, in horses, 5818.
- Slancy**, Robert A., Esq., his work on agriculture, page 1171. A. D. 1824.
- Slaughtering** animals, physiologically considered, 2048.
- Slide** for conveying mountain timber, 339.
- Sligo**, agricultural survey of, 7038.
- Slimy** flux, see Dysentery, 6267.
- Slips** of plants, to propagate by, 1618.
- Slugs**, to destroy, 6922.
- Sluice**, 4075.
- Small**, James, his treatise on ploughs, &c., page 1165. A. D. 1784.
- Small's** plough (figured), 770.
- Smith**, Rev. John, D.D., his work on agriculture, page 1167. A. D. 1798.
- Smith** or **Smyth**, John, his work on agriculture, page 1163. A. D. 1670.
- Smith**, William, his works on irrigation, page 1168. A. D. 1806.
- Smith**, Rev. Samuel, his work on agriculture, page 1170. A. D. 1811.
- Smut**, a disease of plants, 1658.
- Smut** machine, 2648.
- Snail**, edible, 6943.
- Snails** and **slugs**, to destroy, 6922.
- Snow**, its influence in retaining heat, 2257.
- Snow**, theory of, 2309.
- Soaper's** waste, its theory as a manure, 2243.
- Social** habit of plants, its influence on their distribution, 1736.
- Society** of improvers in Scotland, their history, 775.
- Soderini**, Giovanvettorio, e Bernardo Davasati, their works on agriculture, page 1177. A. D. 1622.
- Soil** borer, 2428; of peat, 2430; draining auger, 2431.
- Soiling** with clover, 5004.
- Soils**, see Earths and Soils, 2054.
- Soils**, their influence on the distribution of vegetables, 1711.
- Soils**, their improvement by incineration or burning, 2134.
- Soils**, their aeration or fallowing, 2124.
- Soils**, influence of the weather on, 2150; solar influence, 2151; shelter, 2152; shade, 2153.
- Soils**, how to discover by chemical analysis, 2083.
- Soils** of bad quality, 2099.
- Soils**, their use to vegetables, 2095.
- Soils**, influence of color on, 2108.
- Soils**, their pulverization, 2113.
- Soils**, how to discover their qualities mechanically, 2087.
- Soils** of excellent quality, 2104; at Ormiston, at Mersea, 2104.
- Solar** rays, their influence on vegetation, 2236.
- Solomon** Isles, agriculture of, 1087.
- Somersetshire**, agricultural survey of, 7034; North-east district, 7035; Middle district, 7036; South-east district, 7037.
- Somerville**, Right Hon. John, Lord, his works on agriculture, page 1168. A. D. 1793.
- Somerville**, Robert, his work on agriculture, page 1169. A. D. 1805.
- Somerville** plough, 2492.
- Soot**, as a manure, 2204.
- Soot**, theory of its operation as a manure, 2242.
- Sore** throat, 5781.
- Sour** cream, 6372.
- South America**, agriculture of, 1201; Terra Firma, 1202; Peru, 1203; Chili, 1204; Paraguay, 1206; Brazil, 1207; Cayenne, 1215; Surinam, 1216; Amazonia, 1218; Patagonia, 1219.
- South American** islands, agriculture of, 1220.
- Sowing**, 2912; broadcast, 2913.
- Sowing** among the Romans, 131.
- Sowing** of plantations considered, 3645.
- Spade**, 2376.
- Spade** of the Bushmans of Africa, 1113.
- Spadoni**, Paolo, his works on agriculture, page 1178. A. D. 1810.
- Spain**, agriculture of, 688; Moors, 689; sugar-canes of the Moors, 690; climate, 695; surface, 696; soil, 697; landed property, 698; agricultural products, 700; olive, 706; vine, 707; sugar-cane, 708; cotton, 711; rotations of crops, 712; live stock, 713; merino sheep, 714; agricultural implements, 723; operations, 724; forests, 725.
- Spanish** or **Merino** sheep, 6407.
- Spaying**, the operation of castrating the females of different kinds of animals, as sows, heifers, mares, &c. in order to prevent any future conception, and promote their fattening. It is performed by cutting them in the mid flank, on the left side, with a sharp knife or lancet, in order to extirpate or cut off the parts destined for conception, and then stitching up the wound, anointing the part with tar salve, keeping the animal warm for two or three days. The usual way is to make the incision in a sloping manner, two inches and a half long, that the fore-finger may be put in towards the back, to feel for the ovaries, which are two kernels as big as acorns, one on each side of the uterus, one of which being drawn to the wound, the cord or string is cut, and thus both taken out, 6162.
- Speed**, Adam, his works on agriculture, page 1162. A. D. 1686.
- Spergula arvensis** (figured), spurry, 475.
- Sphynges** or hawk moths, 6894.
- Spider**, common, 6914; red spider, 6913.
- Splints** and bone spavins, 5838.
- Splitting**, 2921.
- Spring** fly, 6899.
- Spring**, to collect, 4128.
- Spurry**, culture of, 5079.
- Spurry** (figured), *Spergula arvensis*, culture of, in Flanders, 475.
- Stable**, 2662; farm stables in Scotland, 5667; horse hammels, 2675.
- Stacey**, Rev. Henry Peter, LL.B., F.L.S., his work on agriculture, page 1168. A. D. 1800.
- Stack** borer, 2412.
- Stack** covers, 2750.
- Stack** funnels, 2749.
- Stack** guard or cover (figured), 3047.
- Stack** stands of stone and iron, 2747.
- Stack** yard, 2744.
- Stacking** stage, 3048.
- Stacking** hay, 3044; hay stacks of Middlesex, 3046.
- Stacking** wood for fuel, 2969.
- Stacking** corn, 3035; rules, 3036; unsheaved corn, 3041; sheaved corn, 3042.
- Stafford**, Marquess of, his improvements in Shropshire, 7010.
- Stafford**, Marquess of, his improvements in Sutherland, 7070.
- Staffordshire**, agricultural survey of, 7011.
- Stag** deer, *Cervus elephas*, 6517.
- Staggers** in horses, 5761.
- Staggers**, daisy, or turning in cattle, 6270.
- Staggers**, gid, or turnstick in sheep, 6524.
- Stair**, Earl of, an active improver, 775.
- Stands** for corn, 2745; for hay, 2748.
- Starch**, from what plants obtained, and how manufactured, 1374, 1375; uses, &c., 1376, 1377.
- Statistics** of British agriculture, 6923.

- Steaming machines, 2651; steamers on a grand scale, 2652; economical steaming and washing machines, 2653, 2654; boiling machines, 2655; baking ovens, 2656.
- Steaming house, 2705.
- Steel-yard, 2465.
- Steindl, A. H. Von, his work on agriculture, page 1176. A. D. 1800.
- Stevenson, W., Esq., his work on agriculture, page 1169. A. D. 1809.
- Steward, see Manager.
- Stillingfleet, Benjamin, his works on agriculture, page 1164. A. D. 1759.
- Salpa tenacissima, the esparto rush, 701.
- Shirlington, agricultural survey of, 7058.
- Stirring with the grubber and other pronged implements, 3019.
- Stirring the soil among the Romans, 139.
- Stocking of farms; see Farms.
- Stomach staggers, 5735.
- Stomach, inflammation of, in sheep, 6510.
- Stow, Thomas, his works on agriculture, page 1166. A. D. 1785.
- Stone and gravel in horses, 5817.
- Stone walls, different sorts of, 2831; see Fences.
- Store sheep husbandry, 6450.
- Strain in the shoulders of horses, 5828; in the whirlbone, 5830; in the stifle, 5832; in the back sinews, 5833; of the leg, 5834; of the fetlock and coffin joints, 5835.
- Stranghopes, Samuel, his work on agriculture, page 1163. A. D. 1663.
- Strangles, vives, or ivies, 5774.
- Strangury, or suppression of urine, 5815.
- Strata of England (figured), 2056.
- Straw, to truss, 2951.
- Straw rope making, 2947.
- Straw plait, best grasses for, 5193.
- Straw house, 2706.
- Straw-yard, 2751.
- Strawberries, culture of, in Midlothian, 7047.
- Strickland, H. Esq., his work on agriculture, page 1170. A. D. 1812.
- Stud and mud, houses built of frame work filled in with clay and straw mixed instead of brick-work, 7038.
- Stumps, G., his work on agriculture, page 1176. A. D. 1794.
- Sturdy in horses, 5799.
- Sturdy in sheep, 6524.
- Styles, 2870; see Gates.
- Substances obtained from plants; see Vegetable Products.
- Subterranean irrigation, 4194.
- Suckers of plants, to propagate by, 1620.
- Suckow, G. Adf. his work on agriculture, page 1176. A. D. 1775.
- Suffolk, agricultural survey of, 7002.
- Suffolk cattle, 6117.
- Sugar and indigo, attempt to cultivate in Italy, 58.
- Sugar cane, culture of, by the ancient Moors, 690.
- Sugar cane, its culture in Spain, 708.
- Sugar cane, its culture in Egypt, 1056.
- Sugar cane, culture of, in Jamaica, 1187.
- Sugar cane, its culture and manufacture in Hindustan, 882.
- Sugar, from what plants obtained, and how manufactured, 1372; different uses of sugar, 1373.
- Sugar from beet root, manufacture of, in Flanders, 470.
- Sugar plants of Austria, 617.
- Sumatra, agriculture of, 103.
- Sun flower, its culture as an oil plant, 5477.
- Surfaces, preparation of, for irrigation, 4096.
- Surfeit in horses, 5818.
- Surgery in cattle, 6272.
- Surinam, agriculture of, 1216; principal products, 1217.
- Surrey, agricultural survey of, 6993.
- Sussex and Herefordshire cattle, 6114.
- Sussex, agricultural survey of, 6994.
- Sutherland, agricultural survey of, 7070.
- Swan, Anas olor, 6752; varieties or species, 6753; rearing, 6754; feathers and down, 6755.
- Swayne, G., his work on grasses, page 1166. A. D. 1790.
- Sweden and Norway, agriculture of, 665; climate, 666; surface, 667; soil, 669; landed property, 670; cottages, 671; agricultural produce, 674; car, 678; berries, 680; live stock, 681; implements and operations, 682; harvesting, 683.
- Sweeping, 2938.
- Swelled neck, 5782.
- Swinsborne, R., his farmer's account book, page 1170. A. D. 1819.
- Swine, 6530; varieties, 6538; breeding and rearing, 6561; fattening, 6570; curing pork and bacon, 6576; diseases, 6581.
- Swine of France, 395.
- Swine, mode of breeding and rearing in Mexico, 1163.
- Swine of Paraguay (figured), 1207.
- Swine of Hindustan, 908.
- Swine, wild, Lady Salisbury's breed of, 697.
- Swing ploughs, 2479.
- Swiss cantons, present state of agriculture in, 37.
- Switzer, Stephen, his work on agriculture, page 1163. A. D. 1778.
- Switzerland, state of landed property in, 328.
- Switzerland, agriculture of, its present state, 328.
- Syrian goat, 6594.
- Systematic botany, study of, 1266; glossology, 1266; phytography, 1269; taxonomy, 1273.

T.

Tagbelt in sheep, 6517.

Tag sheep; see Hog sheep.

Tanners' spent bark, how to convert to manure, 2178.

Tannin, from what plants obtained, and in what proportions, 1393; its utility, 1394.

Tar, from what plants obtained, and how manufactured and used, 1429.

Tare, its culture, 4795; varieties, 4796; soil, 4797; sowing, 4801; reaping, 4806; produce, 4809; application, 4811.

Tardella, Camillo, his works on agriculture, page 1177. A. D. 1772.

Targioni, Tozzetti, his works on agriculture, page 1178. A. D. 1809.

Targioni, Luigi, his works on agriculture, page 1177. A. D. 1802.

Tatham, William, his works on agriculture, page 1168. A. D. 1798.

Taxonomy, or the classification of plants, 1275.

Tea plant, culture of, in China, 961; gathering the leaves, 962; various species grown as tea plants, 962; curing and sorting the leaves, 963; sorts of black and green tea, 964; select sorts of tea, 965; Chinese substitutes for tea, 966.

Tea districts of China, 960.

Teasle, or fuller's thistle, its culture, 5339.

Teeth, diseases of, 5636, 5779.

Teeth of horses, as indicative of age, 5956.

Temperature, its influence on the distribution of vegetables, 1690.

Tench, 6803.

Tenures of landed property, 3144; in England, 3145; Scotland, 3157; Ireland, 3163.

Terra Firma, agriculture of, 1202.

Territorial property, its kinds and tenures, 3144; its valuation, 3162.

Tessier, Henri Alexandre, his works on agriculture, page 1173. A. D. 1791.

Tetanus, or locked jaw in horses, 5763.

Tetanus, or locked jaw in cattle, 6271.

Thacker, Alb. his works on agriculture, page 1173. A. D. 1798.

Thaive, a ewe in the second year, 6413.

Thatching, 2948; with straw, 2949; stubble, 2950; reed, 2953.

Thatching knife, 2411.

The Hebrides, agricultural survey of, 7073.

The fox, 6848; mole, 6854; mouse, 6859; rat, 6855; polecat, 6851; weasel, 6852; badger, 6853.

Theress, Theodore, his work on agriculture, page 1176. A. D. 1808.

Thessaly and Albania, agriculture of, 735.

Thibet, agriculture of, 1006.

Thick wind, or pneumonia, 5786.

Thierat, his work on agriculture, page 1172. A. D. 1763.

Thiery, P. J., his work on agriculture, page 1173. A. D. 1822.

Thinning, 2905.

Thirlstone store farm, 6451.

Thistle hoe, or hoe scythe, 2549.

Thistle pincers, 2394.

Thompson, Robert, his work on agriculture, page 1168. A. D. 1802.

- Thomson*, Rev. John, D.D., his work on agriculture, page 1168. A. D. 1800.
 Thoroughpin or blood spavin, 5841.
Thouin, M. André, le Chevalier de, his work on agriculture, page 1174. A. D. 1812.
 Thread and dying plants, substitutes for, 5389.
 Three wheeled cart, 2618.
 Threshing machines, history of, 2625; machine by Mensies, 2627; Dumbleane, 2628; Elderton, Smart, 2629; Meikle, 2630; improvements on the threshing machine of Meikle, 2631; mode of yoking, 2632; winnowing machines, 2633; advantages of threshing machines, 2634; Meikle's two horse machine, 2638; Meikle's water threshing machine, 2640; Meikle's machine for water or horses, 2641; Meikle's machine for wind or horses, 2642; Meikle's machine for steam, 2643; portable machines, 2644; Weir's two horse power portable machine, 2645; machines by Lester on the rubbing principle, 2646; by Forrest, on the rubbing and scutching principle combined, 2647.
 Threshing machine, Meikle's, in Hertfordshire, 6897.
 Threshing by the flail, 2961; whipping out, 2965.
 Threshing among the Carthaginians, 136.
 Threshing machine, history of its introduction, 777.
 Thrashing among the Romans, 135.
 Threshing machine for a manual power, 2453.
 Threshing mill barns, 2697.
 Threshing floors, to form, 2691.
 Throat, diseases of the, 5781.
 Thunder, theory of, 2322.
Tibbs, Thomas, his work on agriculture, page 1169. A. D. 1808.
Tighe, William, his work on agriculture, page 1168. A. D. 1802.
 Tillage implements, 2478.
 Tillage of China, 989.
Tillet, du, his work on agriculture, page 1171. A. D. 1755.
 Timber, its conveyance in Switzerland by a mountain slide, 339; by floating, 340.
 Timber, its valuation, 3763; disposal by sale, 3769; price, 3768.
 Time book, form of, 3140.
 Tipperary, agricultural survey of, 7090.
 Tithes in Ireland, 836.
 Tobacco, its culture in Hindustan, 886.
 Tobacco, its culture at the Cape, 1098.
 Tobacco, its culture and manufacture, 5505.
 Tobacco, culture of, in Yorkshire, 7021.
 Tobacco, culture of, in Roxburghshire, 7050.
Tollard, Claude, his work on agriculture, page 1174. A. D. 1805.
 Tonquin, agriculture of, 945.
 Tool house, 2708.
 Topographical survey of agriculture in Britain, 6989; (see the different countries.)
 Torpidity of animals, 1974.
 Tortoise, common, 6819; mud tortoise, 6820.
 Tortoise of Hungary, 684.
Towne, L., his Farmer's Guide, page 1170. A. D. 1820.
Twinsend, Rev. Horatio, M.A., his work on agriculture, page 1170. A. D. 1810.
 Tradesman's yard in the farmery, 2753.
 Training of horses, 5984.
 Tramel, an instrument or device, made sometimes of leather, but more usually of ropes, fitted to the legs of horses to regulate their motion, and teach them to amble, 5997.
 Traps for vermin, 2475.
Traitmann, Cp., his work on agriculture, page 1176. A. D. 1809.
 Tread for over-reach on the feet of horses, 5859.
 Trees, their products, how used or disposed of, 3734.
 Trees, table of, for different soils, 3639.
 Trees, diseased or injured, their treatment, 3794.
 Trees, management of, by the Romans, 145.
 Trees, leaves of, used as fodder for cattle in France, 492.
 Trees, their importance to a landed estate, 3637.
 Trench in irrigation, 4081.
 Trench drain in irrigation, 4082.
 Trenching, 2890.
 Trenching or mining plough, 2497.
 Trenching plough, 2497.
 Trencham estates, improvements on, 7011; charities at, 7011.
 Trifolium Alexandrinum, the clover of Egypt, 1051.
 Tripoli, agriculture of, 1067.
Trotter, his work on agriculture, page 1173. A. D. 1773.
Trotter, James, his work on agriculture, page 1170. A. D. 1812.
 Trotting of horses, 5991.
 Trout, 6811.
Trowel, Samuel, his work on agriculture, page 1164. A. D. 1739.
 Truffle, Tuber cibarium (figured), of Hungary, 1310.
 Trunk, in irrigation, 4076.
Truder, Rev. John, L.L.D., his works on agriculture, page 1166. A. D. 1780.
 Trussing hay or straw, 2950.
Tucker, John, his work on agriculture, page 1168. A. D. 1800.
Tull, Jethro, his work on agriculture, page 1164. A. D. 1731.
 Tull's system of culture, history of, 756.
 Tunis, agriculture of, 1068.
Tupputi, D., his work on agriculture, page 1178. A. D. 1808.
Turbilly, Louis Francois Henri de Menon, Marquis de, his works on agriculture, page 1172. A. D. 1780.
 Turf spade, 2378.
 Turkey, Meleagris gallinavo, 6724; varieties, 6725; breeding, 6726; fattening, 6728; feathers, 6729.
 Turkeys, American, 7014.
 Turn of water in irrigation, 4089.
Turner, Nicholas, his essay on draining, page 1166. A. D. 1784.
 Turning or staggers in cattle, 6270.
 Turnip, its culture, 4876; varieties, 4878; soil, 4885; sowing, 4889; summary of turnip culture, 4894; taking the crop and applying it, 4895; produce, 4907; to raise seed, 4909; diseases, 4913.
 Turnip, history of, in Northumberland, 7024.
 Turnip chopper, 2456.
 Turnip drills, 2555.
 Turnip roller, 2473.
 Turnip tray, 2440.
 Turnip hoeing, 3024.
 Turnip, culture of, in Flanders, 464.
 Turnip barrow drill, 2472.
 Turnip slicer, 2455.
 Turnips and clover, their introduction as agricultural plants in England, 235.
 Turnips, their introduction to Surrey, 6993.
 Turnip or sturdy, 6769.
 Turnip in sheep, 6224.
 Turn-wrest swing plough, 4493.
Tusser, Thomas, his works on agriculture, page 1166. A. D. 1557.
 Tweeddale, agricultural survey of, 7062.
 Tyrone, agricultural survey of, 7102.

U.

- United States, agriculture of, 1130; climate, 1130; season, 1131; surface, 1132; soil, 1133; landed property, 1134; dividing and selling lands, 1135; price, 1136; lands not yet cultivated, 1138; practice of new settlers, 1139; political circumstances, 1141; agricultural products, 1142; live stock, 1143; operations, 1144; civil circumstances, 1146; domestics, 1147; emigration, 1148.
 United States as compared with Van Dieman's land, 1149.
 Upas, or poison tree of Java, 936.
 Urinary, 2743.
 Urinary organs of horses, diseases of, 5812.
 Urine, bloody, or strangury, 5815.
 Urine, cisterns of, Flemish farmeries, 434.
 Urine, incontinence of, 5815.
 Urine drink used in veterinary practice, 5905.
 Urine, suppression of, 5815.
 Urine, theory of its operation as a manure, 2191.

V.

- Valerian, 5525.
 Valerian, culture of, in Derbyshire, 7014.
 Valianeria spiralis, singular economy of, 1591.
Valle, Alexandre, his work on agriculture, page 1177. A. D. 1803.
 Valuation of trees and plantations, 3089. 3763.
 Valuation, purchase, and transfer of landed property, 3143.
 Valuing labor and materials, 3083; farming stock,

- 3086; leases, 3094; landed property, 3099; mines and minerals, 3100.
- Fancosser*, Charles, his work on agriculture, page 1169. A. D. 1807.
- Vanderstreten*, F., his work on agriculture, page 1170. A. D. 1816.
- Van Diemen's land, agriculture of, 1089.
- Van Diemen's land as compared with the United States, 1149.
- Varnae de Feuille*, P. C., his works on agriculture, page 1173. A. D. 1789.
- Varro*, C., *Eq.*, his work on agriculture, page 1165. A. D. 1774.
- Varro*, M. Terentius, his works on agriculture, 46.
- Vegetable anatomy, 1278; external structure, 1279; internal structure, 1311.
- Vegetable chemistry, 1365; compound products, 1369; simple products, 1464.
- Vegetable culture as derived from the study of the nature of vegetables, 1766.
- Vegetable geography and history, 1687; geographical distribution, 1688; physical distribution, 1689; civil distribution, 1797; picturesque distribution, 1736; systematic distribution, 1740; economical distribution, 1747; arithmetical distribution, 1758; distribution of the British flora, 1759.
- Vegetable kingdom, study of, with a view to agriculture, 1264; systematic botany, 1365; vegetable anatomy, 1278; vegetable chemistry, 1365; functions of vegetables, 1465; vegetable pathology, 1638; vegetable geography and history, 1687; principles of vegetable culture, 1766.
- Vegetable life, its character, 1693; counteraction of chemical affinity, 1693; excitability, 1694.
- Vegetable nutrition, 1511; intro-suction, 1512; ascent of the sap, 1513; motion of the sap, 1514; elaboration of the sap, 1523; descent of the sap when elaborated into proper juice, 1533.
- Vegetable oils, 1407; fixed oils, 1408; fat oils, 1409; drying oils, 1414; volatile oils, 1419.
- Vegetable physiology, or the functions of plants, 1485; germination, 1495; process of nutrition, 1511; development or growth, 1537; sexuality, 1589; impregnation of the seed, 1592; propagation of the species, 1606; checks to propagation, 1622; character of vegetable life, 1623.
- Vegetable products, 1369; gum, 1369; sugar, 1379; starch, 1374; salop, 1375; gluten, 1378; albumen, 1318; fibrin, 1381; extract, 1382; coloring matter, 1383; tannin, 1393; bitter principle, 1395; narcotic principle, 1396; acids, 1397; oils, 1407; wax, 1420; resin, 1427; rosin, 1428; pitch and tar, 1429; gum resins, 1446; myrrh, 1455; asa-fetida, 1456; balsams, 1457; camphor, 1463; caoutchouc, or India rubber, 1464; cork, 1465; wood, 1466; charcoal, 1468; sap, 1469; juices, 1470; virtues, 1471; aæcia, 1472; alkalies, 1474; earths, 1476; other substances, 1483.
- Vegetable poisons, 5794.
- Vegetables employed in human economy, their distribution, 1747; bread corns, 1748; edible roots, 1749; oleaceous herbs, 1750; fruits, 1751; fruits of the East Indies, 1752; of China, 1753; of Africa, 1753; of South America, 1754; flowers, 1756; timber, 1757.
- Vegetables of various kinds cultivated in China, 581.
- Vegetables, their systematic distribution, 1740; plants of visible axes, 1741; sexual parts indistinct, 1742; monocotyledonous, 1743; dicotyledonous, 1744; natural orders of Jussieu, 1745; universal plants, 1746.
- Vegetables, their natural decay or death, 1681; temporary organs, 1682; leaves, 1683; flowers, 1684; fruit, 1685; permanent organs, 1686.
- Vegetables, their diseases and casualties, 1638; wounds and accidents, 1639; diseases, 1632; natural decay, 1681.
- Vegetables, principles of preserving for future use, 1797.
- Vegetables, their propagation, 1606; by seeds, 1608; by gems, 1613; bulbs, 1614; buds, 1615; leaves, 1616; runners, 1617; alips, 1618; layers, 1619; suckers, 1620; grafting and budding, 1621; causes limiting propagation, 1622.
- Vegetables, their growth or development of parts, 1337; elementary organs, 1538; composite organs, 1540; annual shoots, 1541; root, 1542; pith, 1543; wood, 1544; perennials, 1545; circulation of juices, 1550; decomposite organs, 1551; anomalies of vegetable development, 1559.
- Vegetables as indicating the nature of the soils they grow on, 2072; argillaceous, 2074; calcareous, 2075; siliceous, 2076; ferruginous, 2077; pasty, 2078; saline, 2079; aquatic, 2080; very dry, 2081.
- Vegetables, their sexuality, 1589; economy of aquatics, 1591.
- Vegetation as influenced by the atmosphere, 2265; water, 2266; carbonic acid gas, 2270; oxygen and azote, 2274; gravity of the atmosphere, 2279; temperature, 2283; vapor, 2288; clouds, 2289; dew, 2297; rain, 2300; frost, 2306; hail, 2308; snow, 2309; ice, 2311; wind, 2313; thunder, 2322; lightning, 2323.
- Vegetation as influenced by weather, 2245; heat and light, 2246; electricity, 2260; water, 2269; solar rays, 2259.
- Vegeto-animal matter, a term applied to one of the principal constituent parts of the farina or flour of some vegetable seeds. It is found in the largest proportion in grain, especially wheat, existing in a state of mechanical mixture with mealage or starch.
- Fermussen*, Sir C., his work on draining land, page 1163. A. D. 1642.
- Veterinary operations on horses, 5861.
- Veterinary pharmacopœia, 5879.
- Villa of the Romans, 75; its division, 81.
- Villages, their establishment on estates, 3573; Bride-kirk, 3575; village seaport, 3577.
- Villages of Switzerland, 335.
- Villeneuve*, Comte Louis de, his work on agriculture, page 1175. A. D. 1819.
- Vine, its culture in France, 407.
- Vine, culture of, in Lombardy, 374; in Tuscany, 290.
- Vine, culture of, in Austria, 614.
- Vine, culture of, in Saxony, 597.
- Vine, its culture in Spain, 707.
- Vine, culture of, in Prussia, 579.
- Vine, culture of, at the Cape of Good Hope, 1094. ‡
- Vine, culture of, in Madeira, 1193.
- Vine, its culture in Switzerland, 337.
- Vivet*, Elie, his work on agriculture, page 1171. A. D. 1607.
- Vineyards of Savoy, 351.
- Vineyards of the Jews, 33.
- Virgil*, his poems respecting agriculture, 47.
- Virgils plough, of, 112.
- Virgilian husbandry, a term made use of by some authors to express that sort of husbandry, the precepts of which are so beautifully delivered in Virgil's Georgics. Formerly the husbandry in this country was Virgilian, as is shewn by the method of paring and burning the surface, of rat-taring or cross ploughing, and of the care in destroying weeds, upon the same principle, and by much the same means. In those parts along the southern coast, where the Romans principally inhabited, not only the practice, but the expressions, are in many respect the same with those of the ancient Romans; many of the terms used by the ploughmen being of Latin origin; and the same with those used by those people on the like occasions. Tull, who has established a new method of husbandry, observes, that it is upon the whole so contradictory to this old plan, that it may be called the *anti-virgilian husbandry*, and that no practice can be worse than the Virgilian, 47. 112.
- Virtues of plants, physiologically considered, 1471.
- Vives, Ives, or strangles, 5774.
- Viviparous animals, 1338.

W.

- Waggon of the Cape farmers, 1106.
- Waggons, 9619; Gloucestershire waggon, 9621; Berkshire, 9622; Norfolk, 9623; Rood's patent waggon, 9624.
- Wales, agriculture of, from the fifth to the seventeenth century, 197.
- Wales, agricultural survey of, 7043; North Wales, 7044; South Wales, 7045.
- Walker*, W., his essay on draining land, page 1170. A. D. 1813.
- Walking as a movement of the horse, 5930.
- Wall*, Richard, his dissertation on breeding horses, page 1165. A. D. 1768.
- Wallflower, culture of, 5062.
- Walls, their influence in producing heat, 2256.
- Walls, see Fences.
- Walnut trees in Savoy, 389.
- Warbles, 5820.
- Ware, in irrigation, 4074.

- Wark*, Dr. David, his work on agriculture, page 1164. A. D. 1761.
- Warp*, a slimy deposit let fall upon land by the sea tides in particular situations. The term is also sometimes applied to the ooze or slimy matter thrown up by the sea, 2148.
- Warping*, theory of its effects on soils, 2148.
- Warping*, 4117; history and theory, 4118; effects, 4119; season, 4121.
- Warrens*, rabbit, extent, stocking, &c., 6593.
- Warts*, 5821.
- Warwickshire*, agricultural survey of, 7012.
- Wash*, medicines used by veterinary practitioners, 5919.
- Washing of sheep*, 6441.
- Washington*, General George, his works on agriculture, page 1168. A. D. 1800.
- Wasp*, bee, and ant insects, 6904.
- Waste lands*, to improve, 4159; mountainous and hilly grounds, 4160; rocky surfaces, 4163; woody wastes, 4172; moors, 4181; peat mosses, bogs and morasses, 4183; marshes, 4197; downs and shore lands, 4203.
- Water*, its component parts, 2263; state of, in the atmosphere, 2266.
- Water meadows of the Romans*, 142.
- Water meadows of Orcheston*, 7031.
- Water*, to procure for live stock, 4127.
- Water*, boring for, 4148.
- Water*, its decomposition by plants, 1532.
- Water*, its influence on the distribution of vegetables, 1702.
- Water*, as an article of vegetable food, 1510.
- Water for farm yard and domestic purposes*, 4157.
- Water melon* (figured), of Egypt, 1057.
- Water*, to filtrate, 4158.
- Waterford*, agricultural survey of, 7088.
- Watering*, 2911.
- Watering arable lands*, 4194.
- Watering land by machinery*, 4111; by sea water, 4112.
- Watering machine for roads*, 3494.
- Watery head in sheep*, 6524.
- Wax*, from what plants obtained, manufactured, and used, 1420; butter of cacao, 1422; butter of cocoa, 1423; butter of nutmeg, 1424; tallow of croton, 1425; wax of myrtle, 1426.
- Wax tree of the Chinese*, 969.
- Weaning a foal*, 5977.
- Weasel*, to destroy, 6852.
- Weather and climate*, their influence on vegetation, 2945.
- Weather*, art of prognosticating, 2331; by the moon, 2334; barometer, 2340; hygrometer, 2354; pluviometer, 2360; thermometer, 2365; precedent, 2367.
- Weather of Britain*, study of, 2369.
- Weber*, F. Bd., his work on agriculture, page 1176. A. D. 1803.
- Wedge sheep*, a castrated male, 6413.
- Weeding tools*, 2393; pincers, or thistle drawers, 2394.
- Weeding among the Romans*, 139.
- Weeding*, 2904.
- Weeds or plants injurious in agriculture*, 5538; relative weeds, 5539; absolute weeds, 5540; perennial weeds, 5542.
- Weighing machine*, 2461; *Weir's*, 2463; for sacks, 2464.
- Weighing cage*, 2461.
- Weir's improved cultivator*, 2534.
- Weir's expanding bean drill*, 2559.
- Weir's manuring one row turnip drill*, 2560.
- Weir's improved hay or corn rake*, 2596.
- Weld*, or dyers' wood, its culture and use, 5377.
- Wells*, 4140; digging, 4141; steining, 4142; use of the auger in well digging, 4144; raising water from, 4153.
- Wells of China*, 987.
- Wells of Persia*, 863.
- Welsh cattle*, 6127.
- West coast of Africa*, agriculture of, 1077.
- West India islands*, agriculture of, 1172; Cuba, 1173; Jamaica, 1174; other West India islands, 1900.
- West Lothian*, or Linlithgowshire, agricultural survey of, 7050.
- West Riding of Yorkshire*, agricultural survey of, 7080.
- Western*, C. C. Esq. M. P., his work on agriculture, page 1171. A. D. 1894.
- Westmeath*, agricultural survey of, 7065.
- Westmoreland*, agricultural survey of, 7026.
- Weston*, Richard, Esq., his works on agriculture, page 1165. A. D. 1769.
- Wexford*, agricultural survey of, 7078.
- Wheat*, culture of, 4599; species and varieties, 4601; soils, 4612; sowing, 4626; dibbling, 4630; harvesting, 4636; produce, 4641; uses, 4644.
- Wheat*, culture of, in Flanders, 454.
- Wheat*, culture of, in Egypt, 1053.
- Wheat*, dibbling of, in Norfolk, 7003.
- Wheel barrows*, 2449.
- Wheel ploughs*, 2506; Scotch plough with wheels, 2507; *Wilkie's* single horse wheel plough, 2508; *Beverton* plough, 2512; Hampshire plough, 2513; Norfolk wheel plough, 2516; paring plough, 2517; draining ploughs, 2518.
- Wheels*, relatively to the wear of roads, 3474.
- Whey*, 6380.
- Whim*, a flow moss so called, improvement of, 7062.
- Whin*, or furze, culture of, 5076.
- Whinstone*, 3390.
- Whipping out grain*, 2965.
- Whirlbone strains*, 5830.
- White*, Stephen, M. A., his work on bees, page 1164. A. D. 1756.
- White*, Rev. Andrew, and Duncan Macfarlane, D. D., their work on agriculture, page 1170. A. D. 1811.
- White beet*, culture of, in Flanders, 469.
- White beet*, or mangold wüzel, culture of, 4962.
- Wicket gates*, 2869; see *Gates*.
- Wicklow*, agricultural survey of, 7077.
- Wiegand*, J., his work on agriculture, page 1176. A. D. 1762.
- Wight*, Andrew, his work on agriculture, page 1165. A. D. 1778.
- Wild boar*, 6531.
- Wild breed of cattle*, 6130.
- Wild men and women of Malacca*, 938.
- Wild pine apple*, a hedge plant of the West Indies, 1196.
- Wildman*, Thomas, his treatise on bees, page 1165. A. D. 1768.
- Wilkie's horse hoe and drill plough*, 2542.
- Wilkie's horse hoe and drill harrow*, 2543.
- Wilkie's wheel plough*, 2508.
- Willey*, Andrew, professional turnip sower in Northumberland, 7024.
- Williams*, T. W., his farmer's law book, page 1170. A. D. 1819.
- Williamson*, Captain Thomas, his work on agriculture, page 1170. A. D. 1810.
- Wiltshire*, agricultural survey of, 7030; South Wiltshire, 7331; North Wiltshire, 7032.
- Wind*, theory of, 2313.
- Wind broken in pneumonia*, 5789.
- Wind colic in sheep*, 6511.
- Winnowing corn among the Romans*, 137.
- Winnowing machine*, 2452.
- Winter*, George, his work on agriculture, page 1168. A. D. 1787.
- Wire worm*, or crane fly, *Tipula*, 6907. 6921.
- Wisnet*, Robert, Esq., his treatise on hemp, page 1169. A. D. 1804.
- Wood*, culture of, in Flanders, 463.
- Woburn dairy*, 6999, fig. 775.
- Wood or woody fibre*, physiologically considered, 1465.
- Wood*, its culture and management, 5364.
- Wood louse*, *Oniscus*, 6915.
- Woodlands*, 3627. 3629.
- Woodlands and forests of Flanders*, 519.
- Woods and forests in Switzerland*, 339.
- Woods and plantations of Dumbartonshire*, 7057.
- Woods and plantations*, judicious management of, in Derbyshire, 7014.
- Woods and plantations of Cheshire*, 7028.
- Woods and plantations of Aberdeenshire*, 7066.
- Woods and plantations of Perthshire*, 7063.
- Woodward*, or land reeve, 4276.
- Woody wastes*, to improve, 4172.
- Wool*, its nature and properties, 1815.
- Wool shears*, 2409.
- Worcestershire*, agricultural survey of, 7007.
- Working horned cattle*, 6125.
- Working classes*, amelioration of, in Sutherland, 7070.
- Working classes*, education of, in Devonshire, 7038.
- Wortidge*, John, his work on agriculture, page 1165. A. D. 1669.
- Worm tribes injurious in agriculture*, 6921; slug, 6922; snail, 6922.
- Worm under the horn*, a disease in sheep, 6524.
- Worms*, common, to destroy, 6922.

Worms in horses, 5809.
 Worms in sheep, 6927.
 Worms subjected to cultivation, 6821; leech, 6845; edible snail, 6843.
 Worms in use as food by the Chinese, 944.
 Worms or puckeridge in cattle, 6274.
 Wounds and accidents of vegetables, 1630; incisions, 1640; boring, 1641; girdling, 1642; fracture, 1643; pruning, 1644; grafting, 1645; filling, 1646; destruction of buds, 1647; of leaves, 1648; decortication, 1649.
 Wounds in horses, treatment of, 5862.
 Wright, Sir James, Bart., his work on agriculture, page 1167. A. D. 1796.
 Wright, Rev. Thomas, his work on agriculture, page 1166. A. D. 1789.

Y.

Yam, *Dioscorea sativa*, culture of, 1193.
 Yarrow, culture of, in Derbyshire, 7014.
 Yellows, or liver disease, 5810.
 Yellows in cattle, 6238; hot, 6261.
 Yeoman, a term applied to the first or highest degree of plebeians in this country. The yeomen are properly freeholders, and such as cultivate

their own lands. This useful and important class of society has been within these few years considerably lessened, 7172.
 Yoking draught animals, 2397.
 Yorkshire, agricultural survey of, 7019.
 Young, Arthur, F.R.S., his works on agriculture, page 1164. A. D. 1767.
 Young, David, his work on agriculture, page 1166. A. D. 1786.
 Yearl, A. Victor, his works on agriculture, page 1175. A. D. 1819.

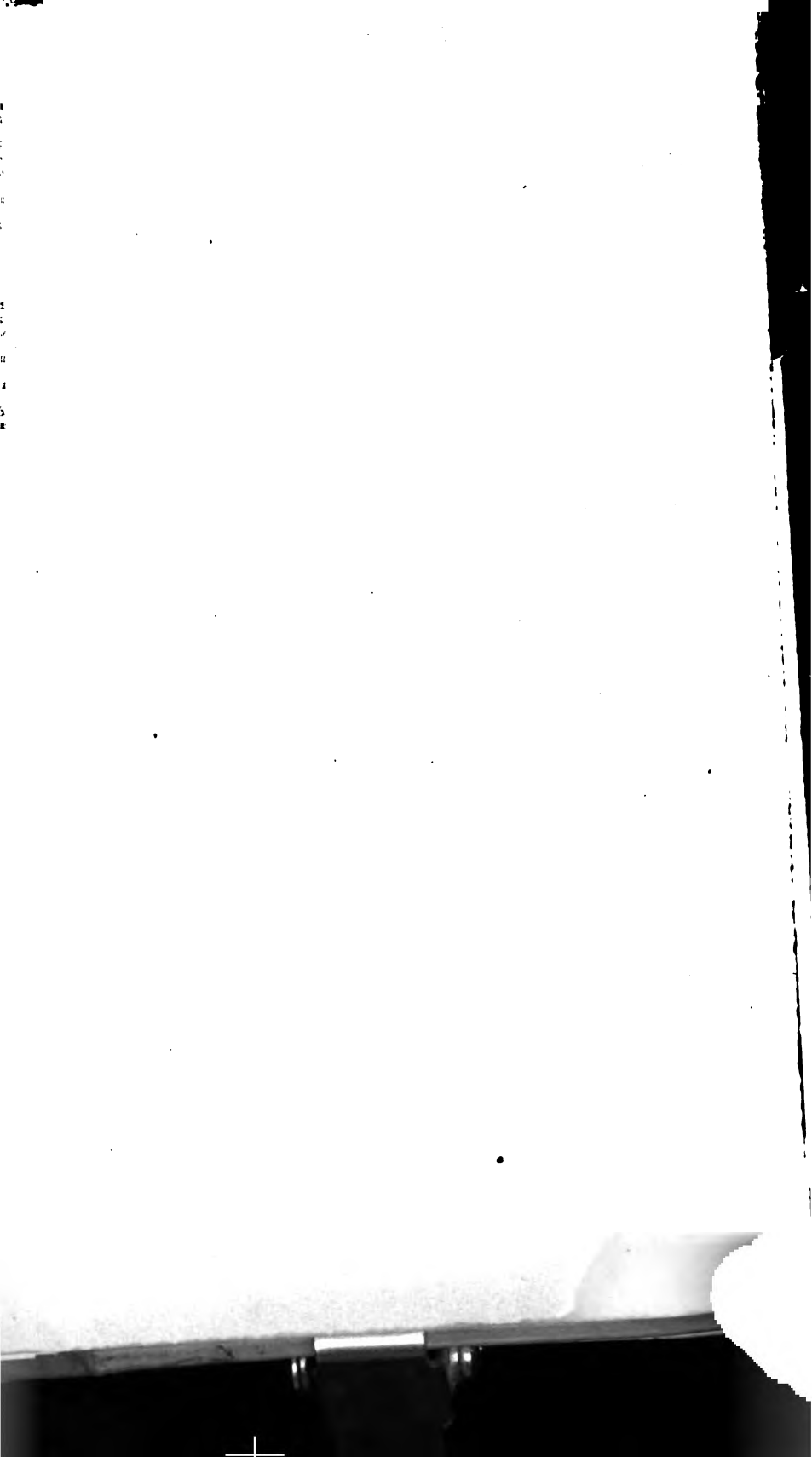
Z.

Zea mays, or India corn, its culture, 4734.
 Zetland and Orkney cattle, 6123.
 Zehmens, Capt. H. Adj. Von., his work on agriculture, page 1176. A. D. 1796.
 Zeigerus, Antoine, his work on agriculture, page 1175. A. D. 1735.
 Zizania aquatica (figured), or Canadian millet, its culture, 4732.
 Zizyphus lotus, culture of, in Tripoli, 1067.
 Zizyphus paliurus (figured), a hedge plant in Italy, 265.
 Zoology, 1801; see Animals.

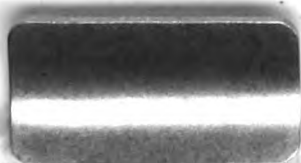
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